ARCHITECTURAL STYLE

By the same Author :

THE THINGS WHICH ARE SEEN

SIR WILLIAM CHAMBERS

GOOD AND BAD MANNERS IN ARCHITECTURE

ARCHITECTURAL STYLE

By A. Trystan Edwards

LONDON
Faber and Gwyer

First published in mcmxxvi by Faber and Gwyer Limited 24 Russell Square London. Made and printed in Great Britain by Butler and Tanner Limited Frome and London

TO

The Schools of Architecture
and of Civic Design

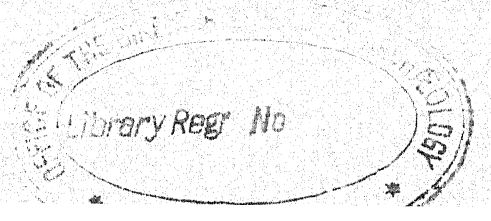
AT THE UNIVERSITY OF LIVERPOOL

This book is respectfully

DEDICATED

by

A Former Student



Preface

THE measure of the public interest in buildings is determined by the degree in which the public deems itself competent to criticize them. We only feel a proprietary interest in the things with which we are free to find fault. Nobody can deny that there is much in modern architecture to which a critic can take objection, and if we do not express our displeasure with the bad buildings our praise of the good ones is deprived of half its value. We have inherited a sum of architectural achievement represented by thousands of buildings which have a beauty of extraordinary range and significance. Genius of the highest order has found expression in all the styles of architecture, but in these same styles there are innumerable examples of bad composition, of stupidity and of vulgarity. In fact, all the intellectual sins of which man is capable can be committed in the realm of architecture. Before we can appreciate the beauty as well as the ugliness it is necessary to *observe* buildings, and this act of observation is a purely intellectual act. Mere vision in itself does not imply observation. If it did, a fish that poked its head above the surface of the Thames and saw St. Paul's Cathedral would be capable of criticizing that building. But while vision does not carry with it observation, observation carries with it judgment, and it is this judgment of architecture based upon observation which is the subject of the present volume.

The method of analysis here adopted is capable of being understood by architect and layman with equal facility, for it does not presuppose any special technical nor historical knowledge of architecture. In this book I have enlarged portions of a chapter entitled *The Grammar of Design* which appeared in a previous volume *The Things which are Seen*. This latter treatise, an essay in æsthetic philosophy, was devoted to an analysis of the nature of beauty in general and three principles of composition, namely, those of Number, Punctuation, and Inflection, were formulated therein. It was shown that while these principles are invariably exemplified in the shapes of animals and plants they also apply to objects created by Man. In the following argument I have attempted to relate the theory of architectural composition to this general Grammar of Design.

The three organic principles by reference to which all the examples of buildings here illustrated are judged have their roots in reason and nature and, therefore, do not require the recommendation of particular individuals. It is a source of satisfaction to the author, however, that the formal principles expounded in *The Things which are Seen* have been recognized by a certain number of architects as being useful to them in design. Furthermore, I should like to refer to two books entitled *Principles of Architectural Composition* and *Architecture Explained*, in which Mr. H. M. Robertson, Principal of the Architectural Association School of London, has, with generous acknowledgments to myself, elaborated one of the three principles expounded in *The Things which are Seen*. The principle which he considered capable of popular exposition was that of Number, which has to do with the avoidance of duality in architectural composition, but as the other two principles are bound up with the first and are equally necessary to the

critic and creator of buildings, I have thought it incumbent upon myself to elaborate these latter also in order that their application to architecture may be as well understood as is that of Number.

As the diagrams are intended to uphold an æsthetic argument rather than an historical one they have not been arranged in a chronological sequence, but have been chosen from numerous sources with the sole object of exemplifying a grammar of design. In my commentary upon the buildings old and new which are here illustrated I have taken the liberty of suppressing the names both of the buildings and of their architects ; for such a procedure not only renders less cumbersome my references to the examples (these latter being given figure numbers only), but helps us to devote our attention to the formal qualities of the buildings without being tempted to dwell upon their historical or personal associations.

In conclusion, I must express my indebtedness to the Editor of *The Architects' Journal* for encouraging me to compile the following chapters, which were originally submitted to the judgment of his readers.

A TRYSTAN EDWARDS

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Introduction

Styles and Stylists

IT may be asked: 'Wherein does architectural style consist?' And the simplest answer to this question would be that it implies a certain disciplinary code. A style, whether it be of architecture or anything else, implies that there are certain things which the person or object exemplifying the style is not allowed to do. If he does these prohibited things he is going to lose a certain distinction, and the form of the object or the action of the person acquires a laxity, one might call it a 'sloppiness', which immediately puts it outside the pale of style. This discipline, however, is imposed by the stylist himself and represents a voluntary subjugation to a certain form of reason. The subjugation is undertaken voluntarily because, paradoxical though this may appear, it causes the stylist to receive an access of energy and increases in him both the will to accomplish and the power of accomplishment. But while the stylist abjures freedom he does not recognize authority in so far as authority is divorced from reason and takes its stand upon tradition and past usage or the present reputation of individual practitioners in his own art.

How are we to define the word style? Unfortunately the character of the present topic is such that in discussing it we cannot adopt a procedure by which definitions precede dialectic. In mathematics and the other exact sciences definitions come first and ratio-

cination follows there from. In subjects such as philosophy and art, however, a definition is less often a mere premise than a summary and crystallization of a prolonged argument, and it may more properly come at the end of a discourse than at its beginning. For the time being it will be sufficient if we use the word style in a manner which is authorized by common parlance, and if throughout the argument we can but give this term a consistent meaning, we shall gradually be preparing ourselves for the fastidious intellectual act of definition.

Style and Character

Before considering the question of style further, it may be well at this point to make an important distinction, that between character and style. The character of a building depends upon its capacity to express a certain function and status, and it is quite clear that in what are known as the historical styles of architecture the same function and status can be expressed with almost equal success. For instance, let us take a prominent architectural feature, such as the spire. A Gothic spire expresses the idea of a church, and so does a Renaissance spire, and yet the styles are different. Therefore, if we ask ourselves how can we best express the idea of a church, it is a quite illogical procedure to begin at once to argue as to what particular style is suitable for the church. The character of the church is not dependent upon its style or even upon the style of buildings in its vicinity. On what does its character depend then ? The answer is that we must consider the township as a whole and the relation of the spire to the township, before we can apprehend the true significance of this feature. If we see a town composed of comparatively low buildings, and one pre-eminent spire set in its midst, it is clear that this building, if its formal pre-eminence is to have any

meaning at all, must be pre-eminent socially also, and, furthermore, if the important building is rather small in area this formal pre-eminence can only be expressed by great height. A church spire or tower was originally intended to be a symbol of social importance. It only becomes so, however, provided that we make a very clear rule that no comparatively unimportant building shall be allowed to have a spire. So if we assume that by general agreement the spire form has been assigned to a church the character of the spire cannot be established unless there is a definite interdiction preventing all other buildings from having a spire. No matter what the ornament on the spire may be, or the general characteristics which might make one affirm that it belonged to any particular historical tradition, its character as the symbol of a church is entirely dependent upon the social act on the part of the community at large, which will preserve for the church a particular privilege. If we are to choose between an assemblage of buildings which have faults of deportment and character and one which shows a very great and even diversity of styles, the latter is far preferable. In a town like Oxford, for instance, we see cheek by jowl, Renaissance colleges, such as Queen's, mediæval ones such as All Souls and Brasenose, and many others, but as all these buildings very truthfully affirm the collegiate spirit, that is to say, they are low, quadrangular in shape, and express a certain orderly domesticity, they harmonize with each other far better than would a group of buildings even of homogeneous style, if these latter were guilty of an infringement of the conventions which relate to character. Therefore, it is exceedingly necessary in discussing the question of style to make it clear that style is subordinate to character. We must get the character right first, and having done this, it will be time enough to establish the proper qualities which appertain to style. In

current American literature we have very long discussions as to whether the Gothic style is more suitable to the skyscraper than is that derived from Classic sources, and the disputants who wrangle thus imagine that their arguments embrace the whole subject. It may well be contended, however, that from the civic point of view a commercial skyscraper which, by its size and prominence, arrogantly overbears churches and town halls and other important public buildings, is equally unbearable whether it be designed in the Classic, Gothic, Renaissance, Egyptian, or Byzantine, or even in the Jewish style, if such there be. In fact, there is a very great danger that the heated arguments concerning style will obscure the more fundamental problems which relate to character. The important distinction is this : that whereas the style of a building is a matter which the individual artist is able either rightly or wrongly to choose for himself, the character of a building is partly dependent upon a certain architectural code being observed by others.

The Comparison between Style and Language

It is a common practice to compare style with language, and it might be assumed that a cosmopolitan or universal style would be in some measure comparable to Esperanto. If that comparison were just it would, in the opinion of many people, kill whatever enthusiasm they might have had for the establishment of a universal style in architecture. Esperanto may have certain uses, and its advocates advance many claims on its behalf, but the fact remains, nevertheless, that it is extremely improbable that any great work of literature will be composed in the Esperanto language. Yet the comparison between architectural style and language is a valuable one, for just as there is a science of language called philology, which enables one to compare the characteristics of the separate languages, there

ought also to be a science of style which will enable us to compare the qualities of the known historical styles of architecture. Architectural philology might be a useful term in which to describe this particular science. Like language, architecture has its vocabulary and its grammar, but while it has several distinct vocabularies all covering the same field of expression, it has only one grammar.

Whatever element in architecture depends for its expression upon a certain measure of agreement concerning its use becomes to this extent symbolic. But while in language the whole of the vocabulary is symbolic—that is to say, a word means nothing to us until we have learnt what significance attaches to it through the general consensus of those who speak the language, in architecture by far the greater part of the vocabulary is *expressional*, that is to say the elements and features of a building proclaim their use or purpose to anybody who chooses to look at them with intelligent eyes.

A style, if it is to be worthy of the name, must be capable of expressing every social purpose. When the several styles of architecture had their greatest vitality this was the case. In mediæval times it was considered right and proper that the Gothic style should be adapted to all kinds of building, and in the Classic and Renaissance periods it was likewise found that there was no difficulty whatsoever in adopting the prevalent style to structures both great and small. The subject of architecture, however, cannot adequately be expressed unless the formal grammar that gives coherence and intelligibility to all the styles has first been apprehended. When this grammar is once analysed we shall, perhaps, be enabled to determine which of the various styles of architecture, either in its present state or modified, is likely to be most useful to us.

What do we mean when we speak of architectural

grammar? And besides this grammar, what other elements of architecture are there? Before answering these questions, let us revert for a moment to the analogy between style and language. Now, in the language of speech and literature there are three main elements—the vocabulary, the grammar, and lastly, the sense of what is spoken or written. The third is above and beyond the other two. A study of the sense is superior to the study of language, because the sense includes the whole of thought in general—art, literature, politics, science, and so on, while language is but an instrument for the communication of the thought. The study of language is, nevertheless, an important one. It is concerned, in the first place, with that grammatical use of vocabulary which leads to sense. This appertains to the 'internal politics' of a language. Its 'external politics' are dealt with in comparative philology, a science principally concerned with the relationship which the different languages bear to one another. The term 'politics' is in this instance more than a metaphor, because among languages there is often a struggle for mastery; languages conquer or are conquered, they split up or unite and, in fact, they are subject to many of the stresses which disturb the political world.

In architecture, too, we find a vocabulary, a grammar, and above and beyond the vocabulary and the grammar is the sense or subject; furthermore, this sense can often be expressed in several architectural languages called 'styles'. And just as there is often a conflict between languages, there is a conflict between styles. For reasons which will presently be set forth, in architecture this conflict is far more acute than it is in the case of the language of speech and literature. There are, however, some essential differences between the nature of style and that of language, and it is important that the analogy between the two should not be

pressed too far. Yet the comparison will enable us to adduce certain truths about architectural style which could not easily have been arrived at by any other means.

The greater part of the vocabulary of architecture is expressional. Doors, windows, walls, roofs, and many other features proclaim themselves to be such, and we are not only enabled to this extent to interpret the sense or subject of an architectural style practised in our own country, but buildings belonging to a civilization quite alien to us are likely to have certain features which proclaim their purpose very clearly. The expressional character of the vocabulary of architecture is also responsible for the fact that in architecture the styles are related to each other more intimately than are the various spoken languages. If a Japanese word be interpolated in a piece of English prose it is utterly unintelligible, and there is not the slightest danger of undigested little chunks of one language invading another. But if somebody chooses to design a house in what may be described as the Japanese style and set it in the midst of an English village, there is nothing to hinder him, and although the juxtaposition of the two types of architecture would cause a discord, it would not prevent our understanding the domestic purpose of the new building. Thus, it is fatally easy to mix the styles of architecture.

While the vocabularies of the various languages of speech and literature enable the same thought to be expressed in several mediums, in architecture it is not always so easy to translate the subject of one style into that of another. The application of the Classic Order to buildings erected in this country has been described as a piece of affectation similar to the practice of writing Latin verse. But whereas in England there is a quite respectable equivalent of Latin verse, namely, English verse, we have no native variant of the Classic

Order capable of performing the same æsthetic function. Though certain subtleties of style, however, are far more untranslatable than any phrase of ordinary language, all the simpler elements in an architectural vocabulary can quite well be expressed in a variety of styles, and especially is this act of translation facilitated where the element in question has a definite use.

The Grammar of Design

It will be found that in the illustrations which follow, many examples will be chosen without reference to style, for in the first instance it is necessary to establish the grammar of architecture. I have differentiated this grammar from the sense or subject of architecture, but it is necessary to bear in mind that even in the formal grammar there is a subjectival element, for the degree of mastery shown in the grammatical use of language enters into the sense of the thing spoken. For instance, the sentence ' 'e don't know nothing about it,' does not even mean quite the same as ' he knows nothing about it,' because in addition to wrongly expressing the sense of the latter, it also conveys the information that the person uttering the statement is imperfectly educated. In these pages I am not discussing the sense, use, or function of architecture, except in so far as the general implication of a building is modified by grammatical usages. The practical requirements of buildings, systems of planning designed to satisfy the conditions of particular architectural ' programmes ', even the expressional function of architecture, so far as this is manifested in the character and status of a building, or in the disposition of its parts in accordance with utilitarian needs, has nothing to do with the present theme, which is the language of architecture, rather than the subject which is revealed by means of that language.

The grammar of the language of speech and literature

is the means of attaining coherence and sense in that medium. The grammar of architecture has in addition to this a most peculiar quality. Not only is it the means of attaining coherence and sense in architecture, but an obedience to its rules inevitably leads to beauty. How does this come about? I do not propose here to enter into the question of general philosophic theory, because I am here concerned not with the whole of æsthetics but with architecture alone. Suffice it to say that architectural grammar is but part of a larger grammar, the grammar of design, which includes within its scope not only the formal principles regulating the products of art, but those of animate nature as well. For a discussion of this general grammar of design, I may refer the reader to my book *The Things which are Seen*, where an attempt is made to set forth a philosophy of the visual arts.

The grammar of design as expounded in this treatise is governed by three main principles, those of Number, Punctuation, and Inflection. The whole form of architecture is included therein, and everything else appertaining to a building which cannot be interpreted in terms of these principles belongs to the subject of architecture. The principles of Number, Punctuation, and Inflection, apply equally to all buildings in any given style, and to all the styles of architecture. In so far as the principles are complied with, to that same extent is the quality of beauty manifested in a design, and wherever the principles are violated we have ugliness.

Yet a knowledge of the principles, although it may give us a sure direction and objective, does not make design more easy; on the contrary, we become aware of the extreme difficulty and complexity of the task as soon as we dig, as it were, beneath the smooth and simple surface of the three formal dogmas. The first of these ordains that a thing, if it is to be a work of art,

must be one thing or an assemblage and not a duality or a division ; the second emphasizes the limits of the thing and separates it from its surroundings, while the third secures the subordination of the parts to the whole and also establishes the relation of the whole to what lies outside it.

Principles, not Rules

Design can never be an affair of rules, for it is a philosophical activity which is concerned only with principles. A principle has many applications. Though every permission has a corresponding prohibition, the number of permissions is infinite. The principle can be obeyed and disobeyed in countless ways. But a rule is rigid, and does not carry within itself the power of flexibility. By multiplication only can it extend its range, and it is a paradox that while to observe ten principles might entail a greater burden than to observe one, to obey ten rules adapted to different circumstances is easier than to be bound by only one simple but tyrannical enactment which would bend to its own mould what is by nature miscellaneous. Rules belong to the domain of politics and administration. This is not to say, however, that they have no useful purpose or that they have no relation to principles. A rule is a simplification of a principle, and exists for the benefit of those who are not philosophers. But architecture is not an activity for all and sundry ; its practice should be the privilege of philosophers alone, and architects are not complimented if it be assumed that the design of buildings could ever be determined by rules. Moreover, there is a practical difficulty involved, because such rules, if they were really to be a serviceable guide to design, would need to be so numerous that all the libraries in the world could not hold the volumes in which they were printed.

INTRODUCTION

An Objective Standard

The grammar of design which is here being expounded has, as its basis, certain assumptions belonging to metaphysics and biology, which I have developed at length elsewhere. I propose here to outline these in a few sentences as the argument would be wholly incomplete without them. In the first place the grammar is an affirmation of the objective standard in architecture. The beauty of a building is held to depend upon the establishment of a certain relationship between the parts of the building itself. Thus, it can never be a question of taste nor in any manner whatsoever a gift from the spectator to the object. The beauty is in the object and the spectator apprehends the beauty, or if he himself, in his capacity as an artist, fashions the shape of the object, then he must deliberately give it the organic relationship between its parts, by which alone it enters into the category of beautiful things. In the visual arts, then, the purpose of the artist, in so far as he is concerned with the formal aspect of art, is to create beautiful things. Here an important distinction arises between literature and the visual arts, and it modifies the character of the analogy between the grammar of language and that of art. In language it may rightly be said that the purpose of a sentence is to convey an idea. There are certain æsthetic philosophers who have jumped to the conclusion that the purpose of a building is also to convey an idea or emotion to the spectator. But such a statement ignores an essential difference between a thought expressed by literature, and a building. The latter is a three-dimensional object existing in space. It has, therefore, a double reality, as it exists both in idea and in corporate form. When Sir Christopher Wren designed St. Paul's Cathedral he did not wish merely to

convey an emotion or idea by means of the building. His object in designing St. Paul's Cathedral was primarily to put in three-dimensional space in a particular part of London and for a particular purpose, St. Paul's Cathedral. This sounds simple. The metaphysic is simple also, for it is content to state, that between a person and the objective world outside him there is an identity of being. St. Paul's Cathedral is not merely a medium through which Wren has spoken to us, it is now an integral part of the solid stuff of our universe. We take delight in its objective being, for this objective being belongs to us. St. Paul's falls down and the idea of St. Paul's remains in its entirety. But by such a catastrophe our very minds would suffer an injury, because there would have been taken from us a very precious part of that solid universe which is ourselves.

This metaphysic banishes psychology, it warns psychology off the field of art. Through its agency the subjective view of art, the tendency to judge things by diving into the mentality of the spectator is proclaimed to be misleading, if not actually fraudulent. In a work of art the intellect resides in the thing, and this intellect speaks direct to the intellect which is in us. Nor can the objective standard be upset by an appeal to biology, by an assertion that the beauty of animals and plants was a pre-intellectual phenomenon, and that artists by dint of their emotions or instincts can produce beauty without the intellectual act which can establish an organic relationship between the parts of an object. Biology does not now acknowledge a pre-intellectual era in the growth of species. Intellect was there from the first and even the plants possess it, and are guided by it.

Vitality in Architecture

The chief difficulty in illustrating the principles of Number, Punctuation and Inflection is to choose

between the innumerable examples of their breach and their observance. In so far as a building expresses these principles it seems to be imbued with vitality, but in so far as it violates them it appears dull and lifeless. If anyone raises the question whether it is really desirable that a building should have the quality of life my answer is that we have here reached a point at which argument is useless, and one can only make a postulate. I propose to beg the question, therefore, and affirm boldly that the function of design in the visual arts is to imbue inanimate objects with the qualities of life. If one can say of a building that its form is dead one has utterly condemned it, but if we can truthfully say of it that it has life—well, that is the highest praise. No building, however, no matter how skilfully it may be designed, can have as much vitality as even the lowest members of the animal and vegetable species. In the forms of these latter the principles of Number, Punctuation and Inflection are exemplified wholly and in every particular, for in each unit is enshrined a sensitive spirit which animates it and controls its disposition. A volume previously mentioned—*The Things which are Seen*—is devoted to an analysis of some of these animal and vegetable shapes, with a view to showing that animate Nature is the supreme exemplar of *formality* in design. A new naturalism was there expounded, for whereas it has commonly been held that a ' naturalistic ' school of design is one which would seek to impart into architecture the element of freedom and ' chance ' apparent in certain aspects of Nature, the Grammar of Design is the very antithesis of this romantic principle which exalts the fortuitous at the expense of what is conditioned by the dictates of logic. In natural scenery it is true that the juxtaposition of trees, mountains, rivers and clouds must necessarily contain an element of chance, and such scenery is undoubtedly beautiful, so a certain school of critics

have jumped to the conclusion that this beauty is born of chance, and if we only worship chance in architecture we shall attain beauty there also. These are the folk who show the greatest hostility to the formulation of principles in design. They misinterpret the beauty that exists in natural scenery, because although this has indeed a background of chance it is not really chance which calls forth their admiration but the formal element present in the inevitable disposition of mountains, valleys, rivers and the effects of light and atmosphere, for even the latter are harmonized through their subservience to natural law. Moreover, part of the charm of scenery often consists in vegetation and the evidence of animal life.

This advanced organic development of plant and animal I take as my exemplar of all the æsthetic subtleties which we should strive, albeit with incomplete success, to incorporate into our architecture. If we could give to a building that perfection of inter-relationship between its parts which distinguishes even the lowest members of the animal or vegetable kingdoms we should be not men but gods. Something, however, of the organic quality to be found in animate Nature is apprehended in the categories of Number, Punctuation, and Inflection. If these principles are complied with in the design of a building not merely the semblance of life but a measure of life itself has entered into it. There is one respect, however, in which architecture must transcend the forms of Nature. A city is not comparable to an assemblage of animals of various species. It is not altogether pleasant to visualize a group of buildings which have taken to themselves the characteristics of widely diverse animals, one building being based on the physiognomy of a lion, a second suggesting a horse, a third a dove and yet another a caterpillar. That is not the meaning of the new naturalism. The organic qualities which would

distinguish a building are common to *all* animals and plants, and it is purely accidental if we take one animal or plant rather than another as an example by which to fortify the formal argument. The chief distinction is that while the *subject* of a building is entirely human, its *form*, on a much lower plane of development, is akin to the forms of animals and plants. Buildings, however, transcend the latter in this one particular, namely, that they must comprise a society of which the units are related to one another far more intimately than are the units in the animal and vegetable world. A city is a society of architectural units, which is itself organic. The various styles of architecture must be judged by reference to the degree in which they enable this object to be achieved.

It will be found that not only animate Nature, which shows itself, in all the shapes and dispositions it assumes, to be instinct with logic, but such works of art as are acknowledged to be best obey the grammatic formula here expounded ; for human genius itself and the consensus of taste by which the products of genius have been raised to their high place in popular estimation are themselves inspired by this same logic which is an inborn capacity in every one of us. Thus the grammar is not a ' modernist ' upstart which would presume to render ' out-of-date ' the noble works of the past ; rather it does but confirm our admiration for these, while at the same time it gives us a standard by reference to which we are enabled to defend these works against their unintelligent detractors. It will be found that buildings exemplifying ancient styles by virtue of their obedience to the grammar will be possessed of great vitality, whilst some of our newest structures, albeit their authors claim that they are splendidly original, are in reality still-born because they altogether lack the organic attribute. The Grammar of Design enables us to appreciate the formal

qualities which distinguish all manners of building whether they be past or present, of the West or of the East. The purpose of this book is to aid us in the search for the Style which is beyond the styles.

Chapter I

THE CANON OF NUMBER

THE diagrams which I shall here introduce in illustration of the Grammar of Design will tell their own story. It will, in fact, be scarcely necessary for me to do more than make the briefest comment upon them. Fig. I shows examples of the observance and breach of the first of the three principles—that of Number, which declares that both nature and art abhor a duality which has not in some measure been modified so that it may partake of the character of unity. Where this modification has not taken place there occurs a phenomenon which I have previously described in *The Things which are Seen* as '*an unresolved duality*'. The examples are mostly taken from existing buildings, some good, and others execrable. Sometimes the principle under consideration will be exemplified in a building which is well designed in other respects as well, sometimes its obedience to the one principle will be its own redeeming feature, the complementary principles being utterly disregarded by it; again, in some examples the violation of the principle will be seen to detract from the beauty of a design which has the merit of conforming with the other principles, and in yet a fourth category will be found designs which are faulty in all respects. The reader can himself decide to which category the several examples belong. Fig. I has four columns containing four diagrams each, showing how, in sym-

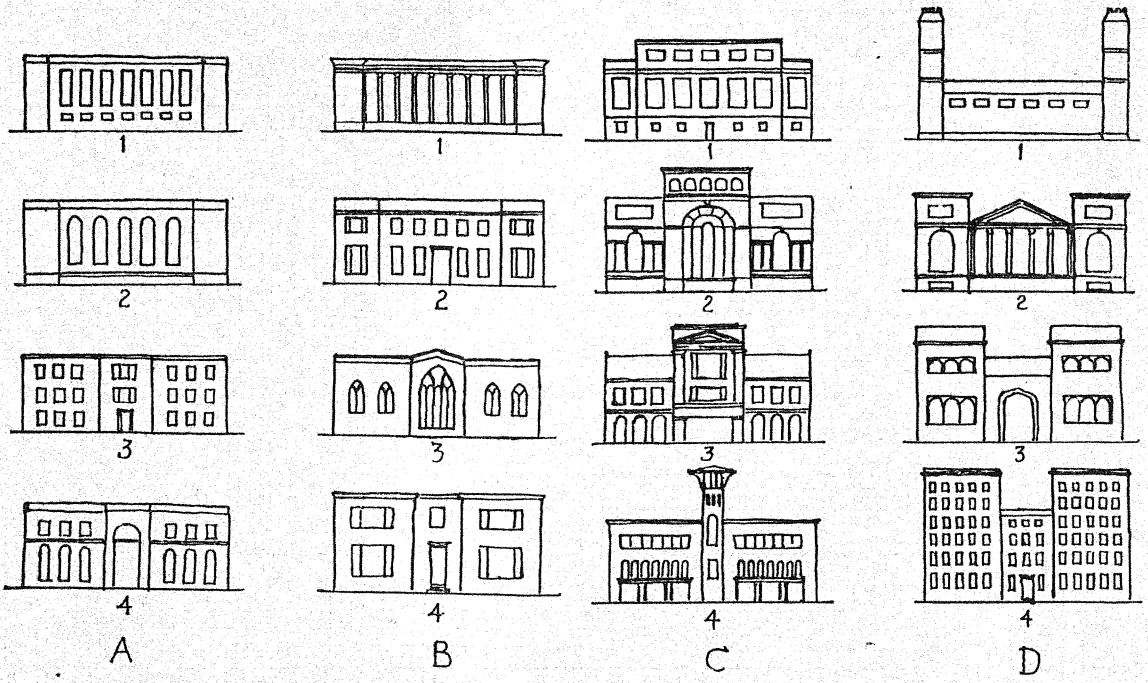


FIG. I

metrical façades of buildings, the dimensions of the central features have an important effect on the unity of the design.

In columns A and C the end features are slightly recessed behind the centre part; in columns B and D, they are in advance of it; in column C the centre part is raised; in column D the features of the extremities are raised.

In each column the width of the central feature progressively diminishes, the total width of the building remaining constant. In Figs. A 1, 2, and B 1, 2, and C 1, 2, the central feature is obviously more important than the wings, so that the unity of the building is not compromised by the existence of the side features. When these latter are raised, however, as in Fig. D 1, although their lateral dimension is still insignificant, their height makes them so prominent that they constitute an unresolved duality. Fig. D 2 shows an example in which the lateral members, reduced in height, are yet effectively dominated by the centre part, which is aided by a pediment giving it additional importance. Fig. D 3 is bad, because in spite of the central doorway the two main blocks assert their individuality at the expense of the whole. Figs. A 3, 4, and B 3, 4, in which the centre feature seems to cut the façade in two, are also faulty; while in Fig. C 4 the tower is merely irritating, because it splits the façade without unifying it. Figures C 3 and D 3, where the façades are divided into three equal parts, although as far as duality is concerned, they may be acquitted of guilt, yet violate the canon of *inflection*, which will be discussed later. For the present, however, it will be a more convenient procedure if we continue the discussion about duality, that formal blemish which the artist must at all costs eliminate from his design. It may seem an easy thing, this elimination of duality, but it is surprising how the

evil spirit, the devil of unresolved duality, crops up again and again in design and in the most unexpected places. A student of architecture may have learnt how to exorcise this devil when it appears in one particular guise, and may resent the assumption that he has not yet fully grasped the principle of Number, and, nevertheless, on the very next occasion he will gaily commit an error in design, which, upon investigation, will prove to be but another form of unresolved duality. I make no apology for the fact that some of the illustrations here shown are taken from designs premiated in important architectural competitions. That the designs in question have been awarded prizes cannot in the least affect one's judgment concerning their formal qualities. Nor do I anticipate that my readers, when once the subject has been put before them in this particular way, will be able to resist the conclusion that an unresolved duality, wherever and by whomever it is committed, is a cardinal error in design. For reason is all-powerful, and gives confidence even to the most obscure of its votaries; and it need not make terms with authority, for if it be but right reason authority itself must ultimately defer to it.

Now, a building is an atrocity and an abortion if it is split down the centre by a narrow vertical dividing member into two equal symmetrical parts. This much has already been established. Let us consider for a moment how it is possible, keeping the central member fairly constant in width, to resolve the duality of the wings by modification of their shape. The very use of the word 'wings' is sufficient to offer a suggestion as to the solution of this particular problem. Fig. II illustrates three butterflies, two of which are freakish and the third natural. Example 1 shows a pair of rectangular wings, a shape which Nature could not recognize because the principle of unity

has been flagrantly defied by it. On looking at these shapes it is clear that they do not compose a pair ; if we were to see the left wing in isolation we do not immediately ask for its right-hand counterpart : the composition is dead. And still less vitality is expressed in example 2, for here the two wings exhibit their detachment even more aggressively by reason of the fact that each is markedly a complete whole, having symmetry about its centre axis. In example 3, Nature shows how the duality of the wings has been completely and elegantly resolved by the

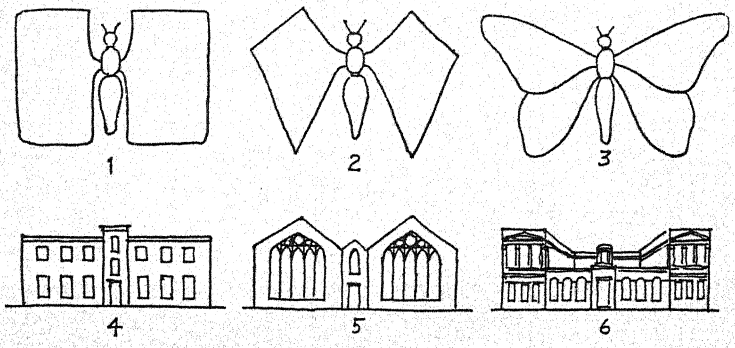


FIG. II

simple device of making the wings complementary to one another. They are bound together by a process which I here describe as *conjugation*. Let us see how in architecture this method of conjugation can be applied to the problem of resolving duality. In Fig. II underneath the drawings of the butterflies are three buildings which in a certain manner correspond to them. In example 4 the central member is so narrow that it utterly fails to dominate the façade and merely succeeds in cutting it in two. In 5, the case is even worse, for here, as in the corresponding insect pattern, the two wings are given a symmetrical

formation which detaches them from the centre feature more completely than in the previous illustration. In example 6, however, although the central member is even smaller than in the other two cases, a far higher degree of unity is obtained ; for on either side of the cupola, the façade, if we regard the end pavilion and the screen wall as comprising one architectural element, may be conceived as a 'wing', properly conjugated. We cannot look at one of these 'wings' without immediately asking, 'Where is the other?' Let us glance at Fig. III. Here again we start by considering a façade whose exiguous central feature fails to unify the design. In example 2 a double solution of the problem is effected. We have here three features which are sufficiently prominent to be dissociated from the façade and to form a self-contained group for which the intervening wallage serves merely as a junction. This type of composition is seen in many famous buildings, and it is so extremely satisfactory from a formal point of view that no future architectural development can deprive it of its usefulness. The reader will himself call to mind a long array of examples in the principal cities of Europe and America where such a 'trinitarian' arrangement of façade has given a dignified formality to both palaces and public buildings. I have described the three prominent features as constituting a whole by reason of the fact that a trinity has itself the character of unity ; but let us look at it in a different light. Each terminal feature, in conjunction with the wallage between itself and the central pediment, may be considered as a wing shaped right and left as a pair, so we may also say that here is an example of *conjugation.*

In 3 the central feature is even narrower. One may safely say that the narrower it becomes the more pronounced is the need for the wings to be conjugated in an emphatic manner. In 4 we see how the main

body of façade 3 can have its duality resolved by the simple process of addition; two extra side-wings are set in relation to the façade in such a way that the lateral members are obviously paired, and the result is satisfactory, and although in comparison with the total length of the façade, the central feature is even narrower than in 3, it has ceased to irritate us. Example 5 shows us a still closer approximation to the organic form of the butterfly, and this might almost

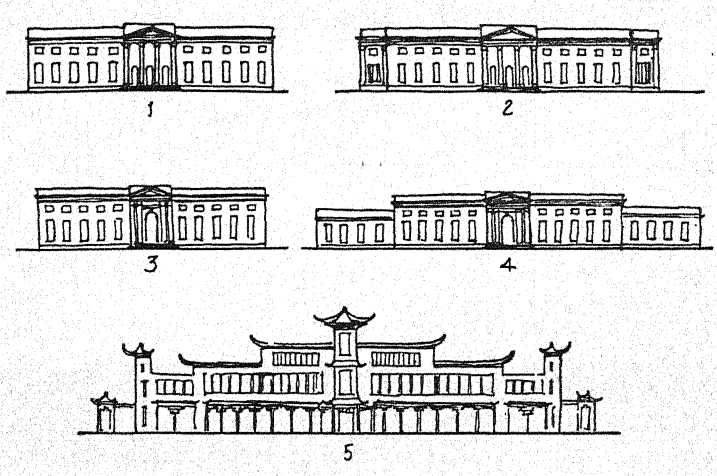


FIG. III

be described as an extreme example of conjugation. I do not express any opinion as to the subject of this building, but it is not an extravagant assumption that the design might be suitable for a first-class modern hotel in a Japanese forest. Coloured scarlet against a background of foliage, its appearance might be highly attractive.

Fig. IV shows in its first example the well-known shape of an ancient Egyptian gateway. It will be seen that in this instance the conjugation has been effected in a different way. The sides of the pylons are sloped

outwards, providing spreading bases for the lateral features, with the result that the central doorway is by no means crushed. It is easy to imagine how insignificant the central feature would have become if the sides of the pylons had been vertical. Let us make a bold experiment and turn the structure upside down. Example B of Fig. IV shows the result, and it is clear that in this instance also the duality has been adequately resolved; whether such a form could ever be considered structurally convenient or

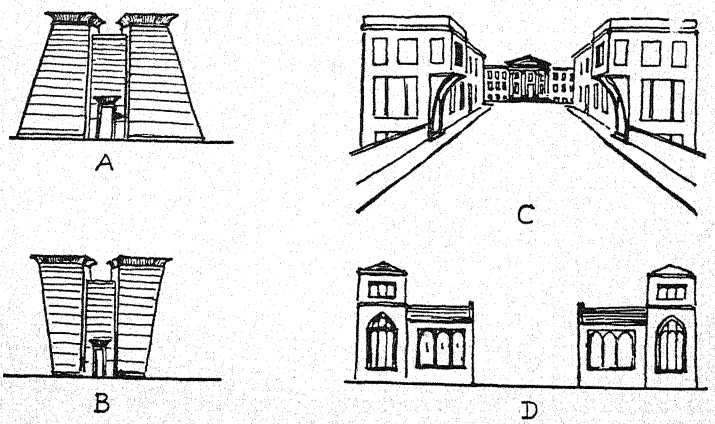


FIG. IV

expressive of any practical purpose, I do not attempt to determine. I am here dealing with the formal qualities of buildings, and I am content to affirm that example B is just as beautiful as A. In C we have the end of a street which abuts upon a bridge. Here the buildings which terminate the street have their duality resolved by conjugation, as the bracketed upper storeys form shapes complementary to one another. This is a case where the interval between the wings is larger and more important than the wings themselves, and thus the interval acquires the charac-

teristic of a central feature. The central feature is the street itself, which becomes the main architectural unit of design, to the cohesion of which, however, the shaped terminal buildings make an important contribution, while it is clear that the pediment which closes the vista also helps to unify the whole.

Example D shows two complementary buildings which again by virtue of the size of the interval between them have the character of a gateway. Were these placed closer together their unity would be impaired, because, although the wings are conjugated, there

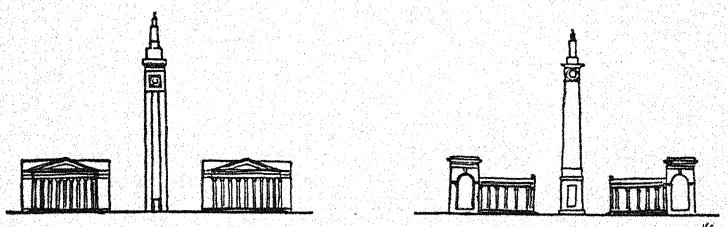
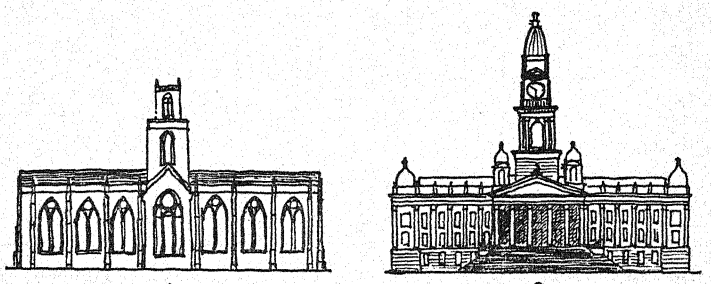


FIG. V

would not be left between them a sufficiently striking central element. In Fig. V the first example shows an unsuccessful attempt to resolve a duality without the help of conjugation. We shall see in subsequent cases that this is often possible, but to effect such a result the central feature must clearly have the character of a dominant. Here the tall, narrow tower is quite unsuitable to form a trinity with the two squat pedimented buildings on either side of it. In fact, it has very clearly the character, not of a joining member, but of a dividing member. But even in such case, although I do not say that the suggested solution is altogether satisfactory, something can be done by conjugation, and example V, B shows how an effect

of greater unity has been obtained by shaping the lateral buildings so that they become complementary to each other.

It is extremely difficult for a tall, narrow tower successfully to form a dominating feature to an important building if it be placed centrally. Fig. VI shows two examples, of which that on the left hand signally fails because the lines of the tower, when continued downwards, cut the façade in two in an irritating manner. In the right-hand example, however, the tower is seen to broaden out into a pediment



1 2

FIG. VI

which still further broadens into a grand flight of steps, so although the dominating feature is itself quite narrow in girth, it has the wisdom to change its character when it merges into the façade. I have just described only one of the qualities by virtue of which this building is one of the most beautiful in England.

Fig. VII shows a number of examples which may here be quite rapidly reviewed. In Line 1 the reader will readily determine which of the buildings constitute unresolved dualities. Examples A and B are obviously unsatisfactory, while D, E, and F have the true trinitarian qualities by virtue of which they are

satisfactorily artistic wholes. It is noteworthy that in none of these three instances has it been necessary to resort to conjugation in order to unify the main features. In Fig. C the two towers, although not entirely dominated by the central spire, are yet so harmoniously bound together by the rows of arches and niches that one would hesitate before describing this façade as an unresolved duality. In fact, it is one of those fascinating examples where unity has been satisfactorily achieved by very subtle means. The arrangement of triple towers is often found in the great English cathedrals, which, by virtue of their scale and harmony, form some of the grandest architectural compositions which have ever been achieved.

Example G of Line 1 shows an unresolved duality of a different character from that of A and B, for here the façade is cut in two by a deep crevice which, however necessary it might have been for purposes of ventilation, effectively destroys the unity of the composition. Line 2 shows how in a general silhouette of a town or village duality can appear if prominent features, such as two spires of approximately equal value, are allowed to compete with each other. In example B we see such a conflict. C shows how a group of three prominent buildings, even though these differ in character from each other, will bring unity to a town, while example A portrays a little village which has a suitable climax because a single spire is allowed to reign supreme over it. Such a composition, however, is sure to look best if we so choose our point of view that the spire does not appear to cut the village into two equal parts.

In Line 3 the principle of Number is applied to arches and bridges. Examples A, B, and E are satisfactory, while C and D are not. In F we have the apparent paradox that although there are two principal spans, the duality is yet quite satisfactorily resolved. This is because in the cantilever system of construction

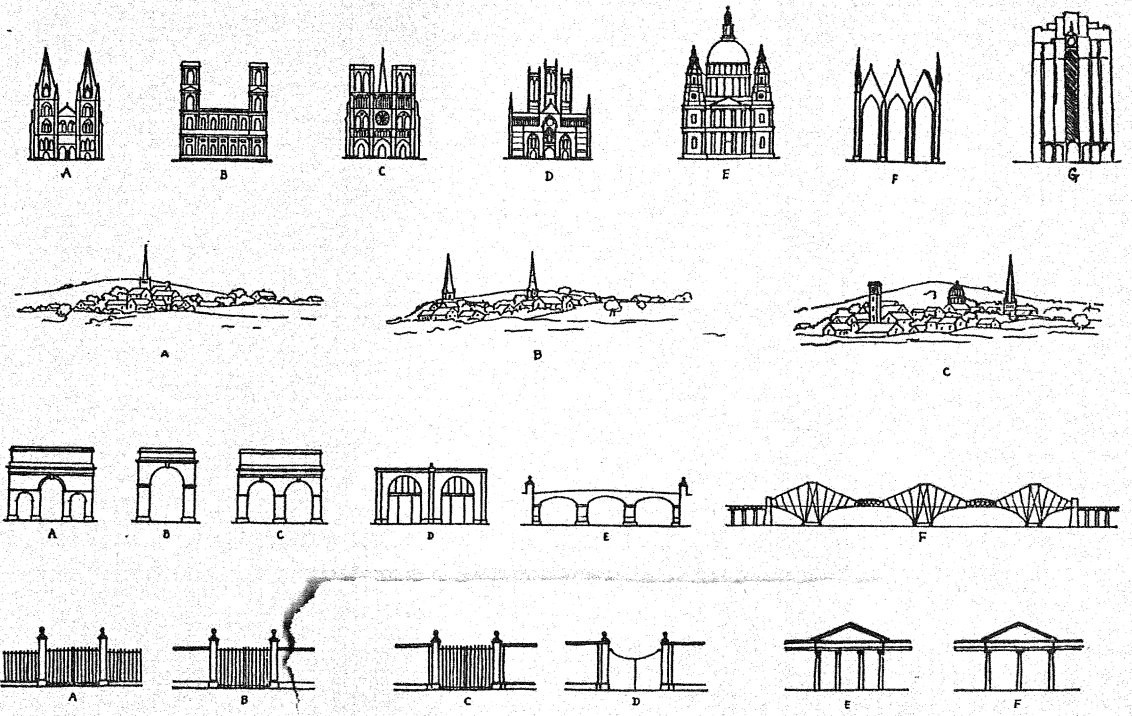


FIG. VII

the pairs of cantilevers themselves are more prominent formally than the intervals between them, so although there are two spans our attention is much more forcibly directed to the fact that there are *three* pairs of cantilevers. So this particular bridge is a notable example of a composition in which unity has been achieved through trinity.

Line 4 elucidates still further the distinction between interval and dividing member. In example A the gateposts form an unresolved duality, but in B by reason of the solid wallage on either side they become conjugated, and our attention is directed, not so much to the duality of the posts as to the single interval comprising the gateway. In C the conjugation is carried still further by the abutments to each gatepost, while in D the degree of unity is again enhanced by conjugating the two halves of the gate itself. Example E and F of Line 4 show how an even number of columns under a pediment making an odd number of intervals is a superior composition to that of an odd number of columns making an even number of intervals. In example F the three columns fail to achieve unity because the duality of the intervals is more conspicuous than the trinity of the columns.

The vertical division of façades or whole buildings into two parts causes a discord only when these parts are approximately equal, and when there has been no attempt at that grouping or pairing of the two halves which I have described as *conjugation*. It may be noted that although I confined my illustration from Nature to a single diagram of a butterfly, the duality of whose wings was completely resolved by this delicate shaping of two members so that in association with a central member much smaller than themselves they formed an organic unity, Nature abounds in innumerable other examples of animal

and vegetable forms equally expressive of the principle of conjugation.

Animate Nature cannot violate the principle of Number, because each unit of it is one unit and not two units. This is obvious. But, it may be objected, does not Nature also deal with two things at a time? Of course she does, but if these be of equal value to one another and parts of the same organism Nature invariably conjugates them to form a pair. The human hands, feet, in fact, the limbs of all animals are in pairs most elaborately and completely conjugated. The horns, antlers, ears, and all features, large and small, which are found in pairs, are made mutually interdependent so that no single member (even when we glance at it quite cursorily) seems sufficient unto itself. And conjugation is in all instances supplemented by the provision of a third and central member which forms the focus of the composition.

Because Nature abhors an unresolved duality, is that a sufficient reason why architecture should display a similar aversion? Suppose that the subject of an architectural composition *demands* a duality. Are we not, then, playing pranks with the subject, distorting the subject and depriving it of its true expressiveness if we insist that it shall show a formal unity when its very constitution happens to be dual? Let us discuss this difficult question with reference to the horizontal division of façades into tiers of windows. Here we immediately come upon an architectural situation in which the principle of Number seems somewhat of an intruder. For who dare contend that when it be found convenient for a building to consist of two storeys of equal height, each having its own row of windows also of approximately equal size, such an arrangement should be surrendered in favour of one which does not comply so well with the particular needs of its occupants? Of course,

where we are dealing with ornamental features, such as domes, towers or spires, even an uncompromising utilitarian might be inclined to adopt a tolerant attitude towards the claims of the formalist and admit that if in unessential features we have a choice between a unity and a duality, let us have the unity by all means ; but where the duality belongs to the architectural programme itself, it must surely remain. We must give due weight to this argument. It was a principle of warfare expounded by Napoleon that an opponent should always be attacked at his strongest point. In order to counter the most formidable objection to the very first article of the Grammar of Design, let us glance at a few buildings in which a formal duality might appear at first sight to be not only pardonable, but necessary. I have already discussed the vertical division of façades into two equal parts ; the following example will illustrate their horizontal division. Fig. VIII A shows a street of cottages having two rows of windows. It happened to be a practical and economical solution of the problem of cottage design that there should be neither more nor less than two floors, and that the windows should be disposed in this particular manner. In this case it may be urged that the façade suffers not only from duality, but from other defects as well, such as the general meanness and monotony of its design. Yet it can easily be imagined that even if we shorten the row, and elaborate the windows by means of decorative features, the effect of duality will remain. We look at the top row and then at the bottom row, and then seek refuge by turning our gaze upon the roof, but do what we will we cannot find a resting-place for our attention. We here become aware of an elementary condition of the human mind itself, namely, that it cannot regard as a satisfactory object of observation that which has not

the quality of being a single object. This singleness is attained either by unity or by a plurality capable of being conceived as a group. Thus the dislike of unresolved duality is not a personal prejudice, but merely a recognition of a mental law by which we are all governed. Must we, then, deny ourselves the convenience which attaches to the very common arrangement of buildings in two floors? Certainly not. It becomes desirable, however, to adopt various expedients by means of which although the actual duality of the storeys is retained, the duality of the façade has been mitigated. This is one of the most interesting problems of design, and one which is so commonly shirked that I need no excuse for devoting some considerable space to it. Of the many thousand two-floored cottages erected in recent years it would probably not be an exaggeration to say that 95 per cent. exhibit the blemish of unresolved duality in the disposition of their windows. Nor can any excellence of materials or workmanship make up for this defect.

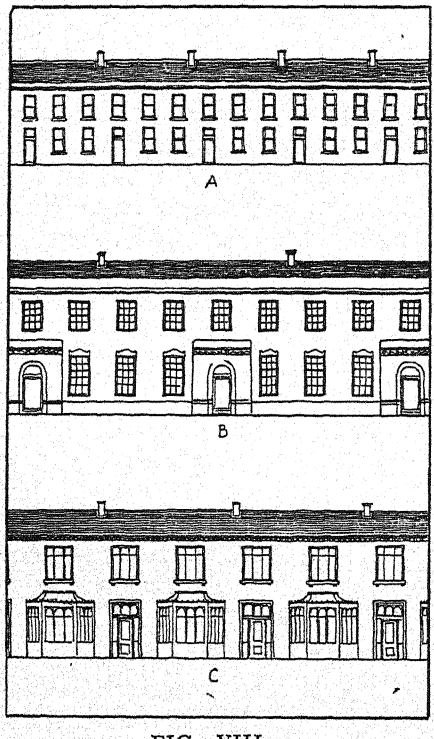


FIG. VIII

The first and most obvious method of approaching the problem is to take advantage of the existence of the doors, and by emphasizing the doors, seek to establish a series of elements sufficiently important to dominate the façade and break the duality of the rows of windows. Fig. VIII B shows a row of houses in which the doorways have been given porches. These happen to be rather far apart, and they still make it possible for the eye to dwell rather uncomfortably upon the two rows of windows in between, but still there is a noticeable mitigation of the duality.

Fig. VIII C gives another solution of the problem, in which a series of bay windows is made the principal feature of the façade, and we are entitled to say that this single row of bays has effectively broken the duality of the rows of windows. It is noteworthy that on the two latter examples the formal improvement over example A is accompanied by an improvement in the subject also, because the designs B and C, inasmuch as each separate dwelling-place is better articulated, are a more successful expression of domesticity.

Fig. IX A illustrates another method of mitigating the harshness of duality. In this instance an attempt is made to create a formal trinity by the introduction of panels in the parapet. Here it was important to make each vertical group of units a contracting series, that is to say, the first-floor window is shorter than that on the ground floor, while, of course, the panel is still shorter than the aperture immediately below. Were the first-floor window so small as to be definitely subordinate to the ground-floor window, the duality would already be resolved and the panels would be unnecessary ; on the other hand, if the two windows had been of equal height, the addition of a panel of much smaller vertical dimension would not have been sufficient to establish a proper trinity. Even

as it is, because the glazed portion of windows is almost sure to be much darker than the wall surface, while the panel is merely defined by the shadow cast by its reveals, the resultant trinity is somewhat lacking in robustness. But frail though it may be, its existence is a pleasant tribute to the law of formality, and with the row of panels the façade is a more mature architectural conception than it would be without them. Needless to say, a strong moulding or cornice immediately below the panels, and separating them from the pattern of the fenestration, would deprive them of nearly all their virtue. In Fig. IX B the panels are placed between the windows, and here, to prevent their presenting the appearance of being crushed by the windows, they are emphasized by ornamentation. It may be asked whether it be not possible to *conjugate* the two rows of windows about this central row of panels, just as a similar resolution of duality was achieved in the case of architectural compositions divided vertically. Windows, however,

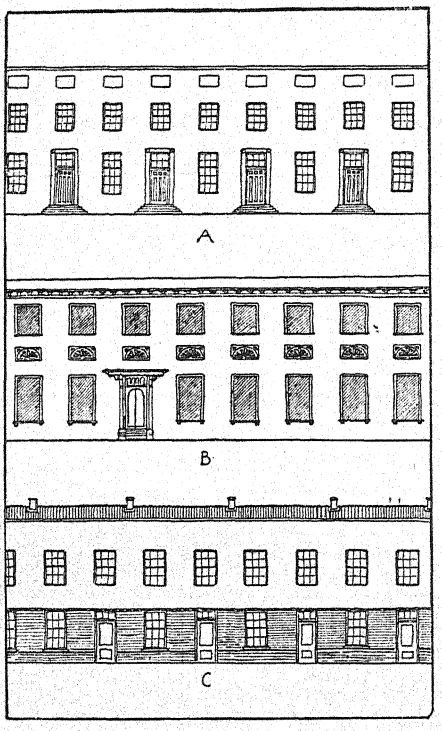


FIG. IX

do not readily admit of being fashioned in the shapes determined by the act of conjugation, for their practical human usage can only be served by forms predominantly rectangular, and, moreover, in the 'butterfly' type of design, symmetry about the central member would appear to be essential. And it will be shown in a subsequent part of the argument that such symmetry would here be a violation of the principle of Inflection, for the pattern of a façade must be otherwise disposed towards its base than towards its summit. In Fig. IX B, however, as in the previous example, an effort has been made to resolve the duality of the rows of windows by the addition of a row of panels, which at least casts over the façade the shadow of a trinity. In Fig. IX C a quite different method is employed. Here, though the windows and storeys are really of equal height, the lower section of the façade has the appearance of being subordinate to the upper. Thus the façade has a dominant which successfully prevents the spectator from being too conscious of the duality in the rows of windows. The stucco section acquires a vertical dimension much taller than the weather-boarded ground storey by including in itself a parapet. This is surely a quite innocent deception!

In Fig. X A, a charming eighteenth-century example, the dominant has been transferred to the lower part of the façade. Behind the arcade is a row of little shops, whose owners also inhabit the floor above. Here the arcade, up to the level of the string-course which unites the key-stones, so much exceeds the space of the façade above it that there is no conflict between these elements. But in connection with this building, also, I must record a subterfuge. The main first-floor level is really at the springing of the arches, and the windows of the upper rooms facing this elevation can only be approached by steps within

the rooms themselves, these steps being necessary to bridge the difference of levels between the ceilings of the shops and of the arcade. Such an arrangement of high arches is partly justified by the necessity to bring more light into the shops, but it is also agreeable to reflect that by means of it the duality of the two floors is quite adequately resolved. Example X B shows yet another attempt to tackle the problem. Here the band of wallage between the windows is given a vertical dimension actually greater than that of the rows of windows themselves. Thus the band of wallage may be considered the central unit, at the top and bottom of which the windows become the delimiting features. The broader the band of wallage, the more completely is the duality of the windows resolved, but in the case of small dwellings there are strict limits to the extent of this interval, and the device can more often be employed in a palace than in a cottage. In Fig. X C the windows are enclosed in arches, but the single row of arches will not domi-

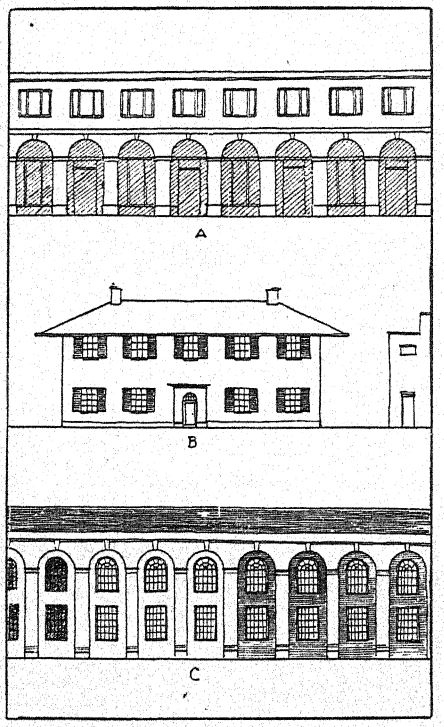


FIG. X

nate over the windows unless the wallage with in the arch be also differentiated in tone or colour from the arcade itself. In the four arches on the right of the figure the windows are more successfully unified than in the two on the left.

In Fig. XI A the Classic Order tends to unify the

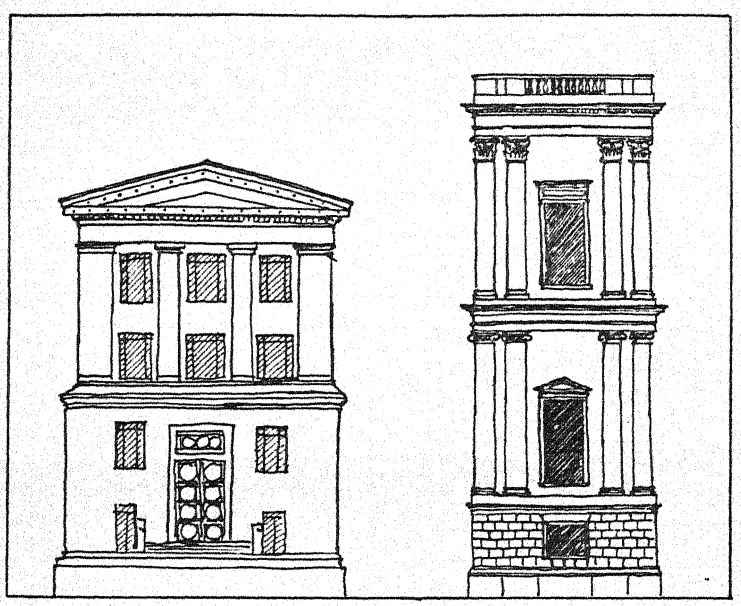


FIG. XI

two top rows of windows, but the design has the very obvious blemish that it is quite impossible to determine which is more important, the lower portion or its superstructure. The section below the Order is too big to be a basement, while the section embracing the Order is too big to be an attic. Example XI B shows how three rows of windows do not always

suffice to make a formal trinity. Here, as in the previous example, the Order embracing the two upper floors gives them a certain measure of unity, but the windows are still prominent, and the basement storey, so emphatically separated from the rest of the façade, and provided with only very small apertures, fails to complete a trinity in the fenestration.

Where there are three storeys of approximately equal height, as far as the horizontal division of buildings is concerned, it is easy to comply with the principle of Number, and the reader will call to mind the Italian palaces and numerous other examples, wherein triple rows of fenestration have a most satisfactory formal effect. The principle of Number applies equally to plans and to the smaller features of architecture, including ornament. As a separate chapter will be devoted to the joint application of all three grammatic principles to both plans and ornament, the discussion of duality may be temporarily broken off at this point.

Chapter II

THE CANON OF PUNCTUATION

MANY of the diagrams shown in the last chapter may serve to illustrate not only the principle of Number, but that of *Punctuation*. The assertion that every object ought to be adequately punctuated seems to border upon the platitudinous. Yet when we try to elaborate this assertion we shall soon find ourselves in difficulties. A thing must have a boundary, for otherwise it could not become an object of contemplation at all, it would be quite nebulous. But in the case of a building what kind of a boundary or punctuation must it be? There are degrees of punctuation, and it is extremely easy to punctuate either too much or too little. But to begin with, it may be well to examine a few concrete examples. It will be observed that nearly all the façades here shown have plinths to mark their lower extremities, and coping stones or cornices to mark their upper extremities. The porch in Fig. VIII B has both base and crowning member, the bow-windows in VIII C are further punctuated by ornament. In Fig. X we see that the columns have capital and base, which make them seem highly conscious of their terminations.

Punctuation is a process of design by which one can give to any object a certain consciousness of its own extremities. By means of it the object appears to be saying to itself, 'Thus far do I extend and no farther.' Without this formal emphasis of its extremities the

object necessarily lacks the essentials of organic unity. Take a plain cylinder, for instance, cut off at its top and bottom ; the length of the cylinder would seem to be entirely undetermined, for one is entitled to ask : What reason is there why it should not extend farther in either direction ? Suppose, however, we give this cylinder a base in the form of a group of mouldings running round it, and a capital of any simple form, circular on plan, and having a larger circumference than a section of the cylinder itself, it is clear that the cylinder has acquired an entirely new character ; for being provided with these emphatic terminations, it is now an integer, whereas before it was but an indeterminate fraction.

The reader can easily call to mind innumerable examples of columns—Egyptian, Greek, or Gothic—which derive their character from their complex capitals and bases, and can, in his imagination, construct the crude and unsatisfactory shapes which would result were these punctuating features to be obliterated. It is noteworthy that originally the punctuations had a constructional justification in that they helped to prepare the extremities for the special mechanical stresses to which they would be exposed, but the universal practice of elaborating and ornamenting these terminals is entirely an æsthetic phenomenon, and it may even be affirmed that the coincidence of constructional and æsthetic emphasis is, in many cases, purely accidental.

The truth of this statement can be most clearly established if we take a number of examples of punctuation in which the constructional element is not present at all. Let us glance at Fig. XII, which represents an ancient archway of extremely elementary design. One cannot help recognizing that in spite of its somewhat ragged outline, it has a truly architectural quality by virtue of the row of small windows which

stretch across its upper portion. In accordance with the new terminology which I am venturing to introduce into architectural criticism, these windows may be said to *punctuate* the façade at its upper extremity ; take them away and the building tends to become a shape-

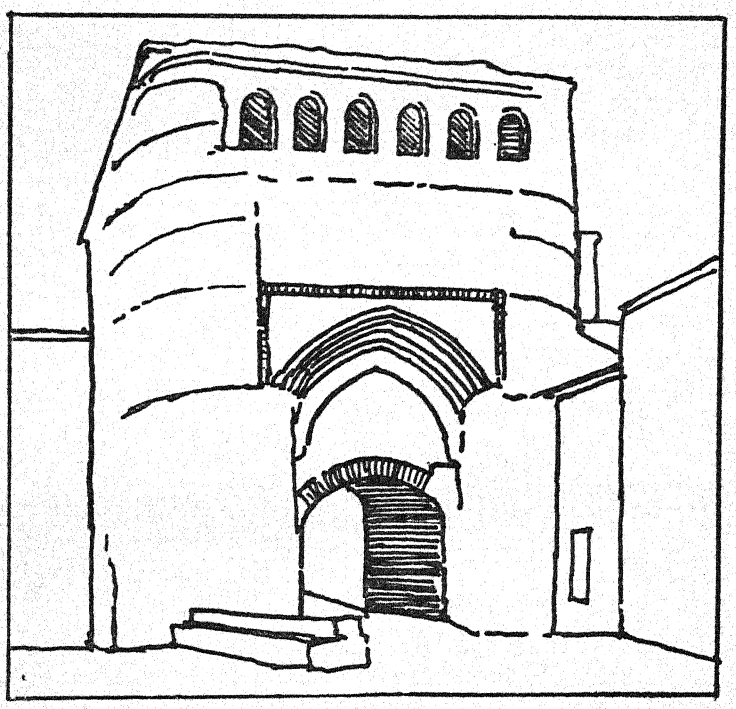


FIG. XII

less mass, of which the height is entirely undetermined. Now it is quite clear that these windows are by no means a constructional necessity. They do not help the stability of the structure in the least, but they provide an element of coherence in its design. Next let us consider the arched openings. In the case of the lower arch the brick voussoirs do, indeed, provide

an instance where the punctuation happens to have a constructional use as well, but the pointed arch above with its multiple reveal is clearly an æsthetic form which has quite a different character from the plain soffit which constructional necessities would have determined. Fig. XIII provides yet another example in which ancient walls have shown themselves to

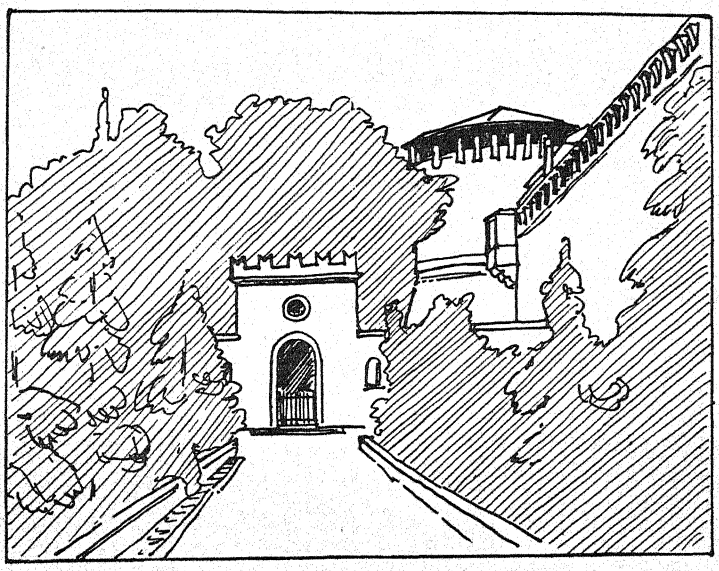


FIG. XIII

possess the graces of punctuation. It will be observed that the shadow cast by the roof which surmounts the battlements in the tower effectively emphasizes its terminal feature, while the gateway is crowned by a decorative parapet.

Example XIV is a highly successful modern application of a similar motif. This distinguished building has a crowning feature made up of a steep, flat-topped roof, supported by a loggia. It will be observed that

the main façade is also punctuated laterally by the broad band of wallage on each side of the fenestrated portion, while the rows of windows themselves exhibit

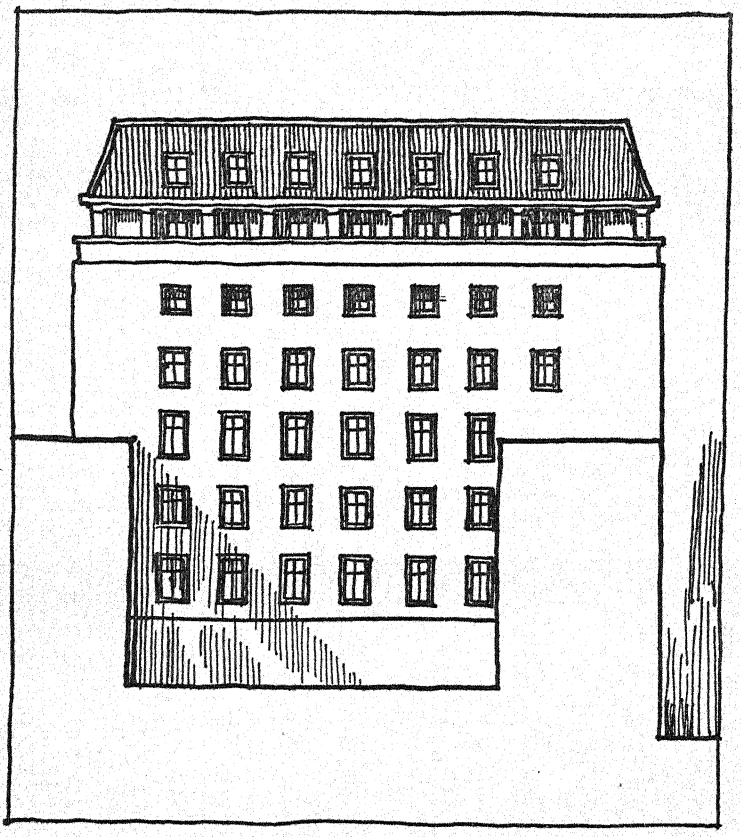


FIG. XIV

a further subtlety of design in that the top row are of smaller vertical dimension than the others. This is also punctuation, because it tends to close the repeating series of storeys which had been proceeding in plain arithmetical progression.

Fig. XV, typical of the Italian Renaissance, is an excellent example of quite a number of different

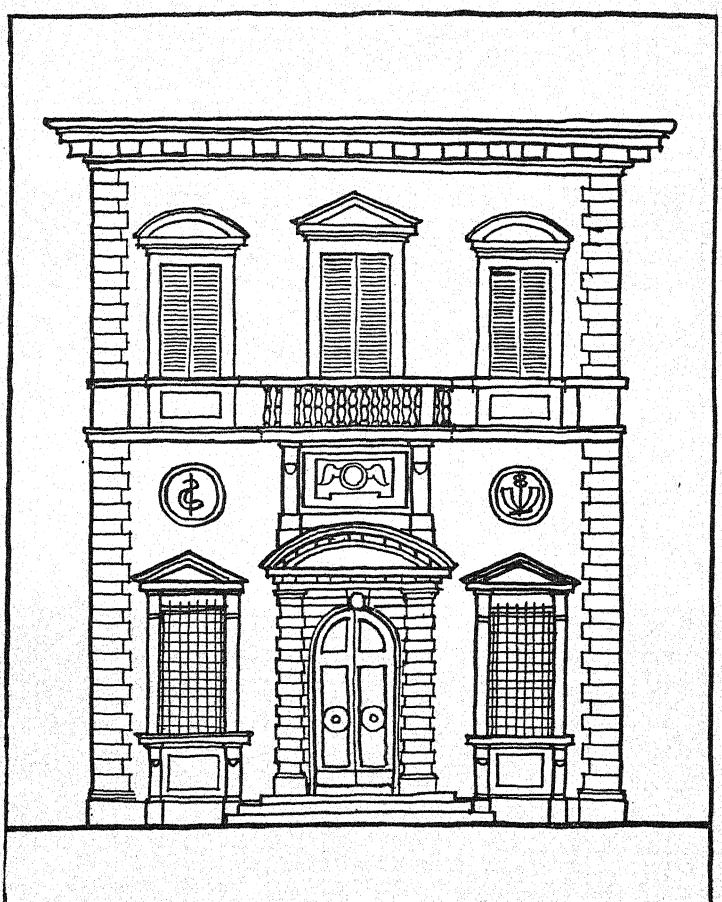


FIG. XV

kinds of punctuation. The grand cornice dominates the whole design, and would do much to unify it even if the internal harmony of the façade were of a lower

order than it is. The building, however, takes formal cognizance not only of its upper boundary, but of its lateral boundaries as well, and the stone rustication forms a pleasing delimiting feature to each side of the façade. The doorway itself is similarly punctuated by rustication each side, while its position is further emphasized by the curved pediment which surmounts it.

The window openings are punctuated top and bottom by crowning pediment and bracketed sill respectively. It may be advantageous to contrast these two last examples and analyse a little more closely the distinction between the forms of punctuation there exhibited. In order to do this, one must turn one's attention to the subjects which find such formal expression. There can be no doubt that in the Italian example the elaborate punctuation of the window openings gives them a social importance which is denied to the plain rectangular apertures shown in Fig. XIV, where each window is conceived as a mere fraction of a large fenestrated pattern, itself comprising a single unit of design. In each case, the very emphatic punctuation of the top of the building is fully justified; for in the first instance the main unit is so great that it is worthy of a highly conspicuous crowning feature; while in the second the individuality of the separate elements of door and window, comprising the composition, is so strongly pronounced that nothing but that powerful cornice would seem capable of dominating them.

Fig. XVI shows four examples of the punctuation of towers. In example A the girth of the tower diminishes at its topmost storey, and this diminution is the means by which the tower takes cognizance of its termination. The upper storey is itself punctuated by cornice and railing. It is noteworthy also that of the open arcades the topmost has taller columns than the

rest, so that the arithmetical progression of the storeys is brought to a close by this additional punctuation, and the ornate ground storey, with its larger columns and arches and solid infilling forms a most satisfactory base to the composition. In the tower B, another famous example, the form expands at its summit by means of machicolation surmounted by a decorative parapet, and this is also an elegant solution of the problem. C, a

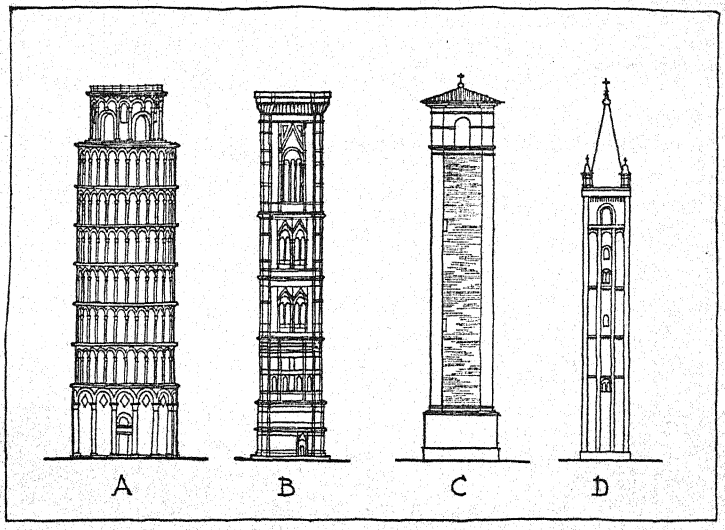


FIG. XVI

plain campanile, has a solid base and a crowning feature of which a small arched window and a tile hipped roof of low pitch are the chief elements. As the body of the tower consists of plain wallage, punctuated laterally by elongated pilasters, any more elaborate treatment of the base or crowning feature would have been out of keeping. The design D is effectually punctuated by a small spire.

Fig. XVII A is a somewhat ludicrous example of a

structure in which the punctuation has been badly mismanaged. Here the crowning feature is marred by a curious duality of purpose. The building swells, and then contracts, without sufficient reason. The initial swelling would have been a quite sufficient punctuation without the addition of the little be-steepled tower, which has all the characteristics of an unpleasant surprise. It is just as if a man who has

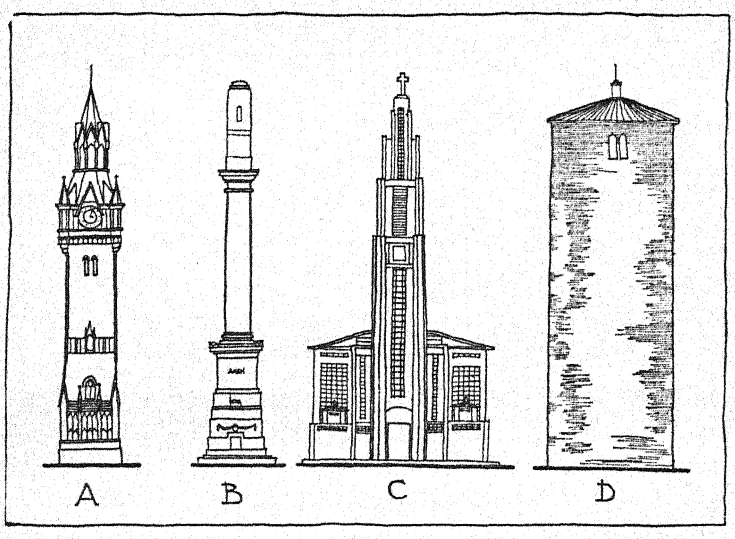


FIG. XVII

already left the room and slammed the door, comes back again and says : ' Hallo ! ' Towards the bottom of the tower a decorative band suggests a premature punctuation ; for having made this quite meaningless halt, the building proceeds down another twenty feet to its true base, which is marked by its Gothic tracery. In example XVII B the continuation of the structure above the capital fails to act as a punctuating feature, for it too closely resembles the form of the column itself,

and seems to be a meaningless extension of it beyond its proper limitation, which is marked by the capital. Again, the base, which comprises a pedestal set on top of a tall rectangular block forming the mausoleum, is altogether too formidable to be the nether punctuation of this design. As the base is in height two-thirds of the column, and equal to it in bulk, it may also be said of the composition that it suffers from the fault of unresolved duality, for the portion above the capital, being purely an excrescence, cannot contribute to the formation of a trinity. The design XVII C is so strangely composed that it appears to suffer from a mechanical instability. The succeeding stages of the tower seem to be arranged in telescope fashion, as if the upper members had been made to slide down to the level of the first stage of the tower. To explain this unsatisfactory result it is only necessary to examine the defects of punctuation which the building shows. While it is true that each stage of the tower is punctuated laterally by the long vertical ribs, its vertical punctuation is far to seek. The long window is topped against a square panel, but the ribs themselves have no terminal features at their summits and thus seem cut off quite at random; and it is an even worse defect that they are not punctuated at their lower extremities, for it is precisely this absence of punctuation that gives rise to the idea that the stages are capable of sliding downwards. Moreover, the tower has no adequate base, and looks as if it might sink into the ground at any moment. The long thin slits of windows, although given a complex pattern of panes, are yet devoid of vitality, in that the pattern altogether ignores the head and foot of the aperture which it fills. These are some of the defects of form in this modern building. The defects in its subject, which consist partly in the inhuman dimensions of these long slits of windows, lie outside the scope of the present discussion. It is a pleasure to turn to the

unpretentious round tower shown in Fig. XVII D, whose elementary cylindrical form has a straightforward punctuation of low conical roof which is quite adequate to the occasion.

The street building requires great care in the disposal of its parts if it is to provide the special type of punctuation which is proper to continuous architecture. We must bear in mind that in a town even a detached

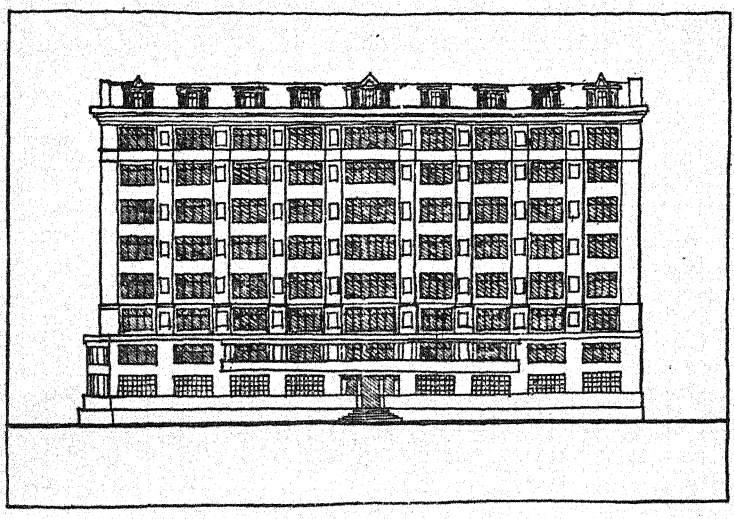


FIG. XVIII

building has not that degree of independence which it may possess in the country. Thus the lateral punctuations cannot with propriety be so emphatic as unduly to separate a building from its immediate neighbours. On the other hand, the punctuating elements at the upper and nether boundaries of an urban façade are quite necessary if we are to derive any æsthetic pleasure from the appearance of our streets. Fig. XVIII is a mediocre composition, for here we have

repetitive design which lacks the character of true formality. The façade seems almost uniformly covered with windows, which even sprawl above the cornice and prevent the latter from having very much value as a punctuating member. It is a very common fault in modern street architecture that there is an insufficient band of wallage between the ground-floor windows and the first-floor windows, while the older convention of parapet wall, which forms such a successful termination to the typical eighteenth-century urban façade, is discarded in favour of a quite flimsy cornice above which there are either one or two rows of dormers, probably framed in stone against a slate roof. It might be laid down as a general rule that no dormers ought to be permitted above an urban façade, unless they are preceded by a parapet, for otherwise the fenestration is apt to peter out in a vertical series unpleasantly indeterminate.

In Fig. XIX A we see a row of normal façades for shops, most of which are designed in that unassuming urban style which is now unhappily becoming extinct. In the centre, however, is a modern intruder, a building whose three storeys are united in one gigantic frame which effectually separates it from its neighbours. Not only disparity of scale offends us here, but the abuse of punctuation. It is noteworthy that the other buildings of the street, although they are quite adequately terminated at their upper boundaries, keep their sides open, as it were, to the next building, so that in spite of a considerable diversity in their designs they form quite a companionable group. Even the pedimented building on the right, conspicuous though it is, does not defy the social convention so boldly or so disastrously as does the new emporium. Let us consider how such structures would look if they were placed together in a row. Example XIX B shows that this particular type of shop-front is incapable of forming

part of a unified composition. The lateral punctuations have made each unit too self-sufficient. This is not to say, however, that a long terrace of street buildings can dispense with lateral punctuation, for in such

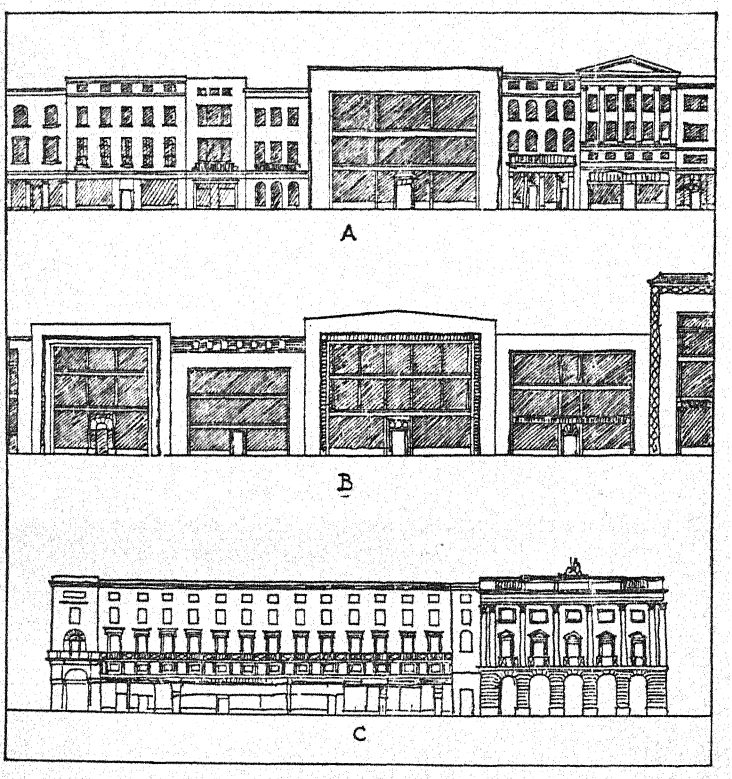


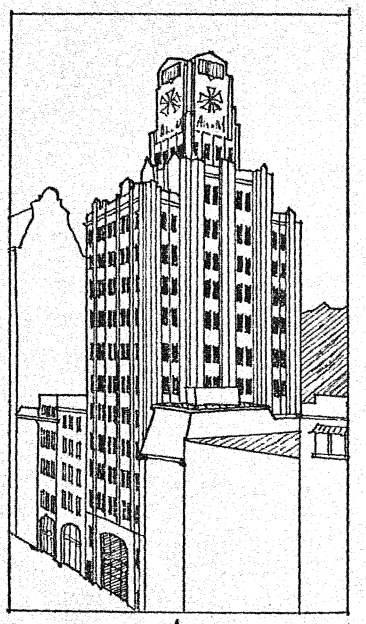
FIG. XIX

a case we are dealing with a unity as large as can be conveniently visualized from any one point, and such a unity requires a formal emphasis at its terminations. The very famous street composition which is roughly sketched in Fig. XIX C shows the utmost subtlety in

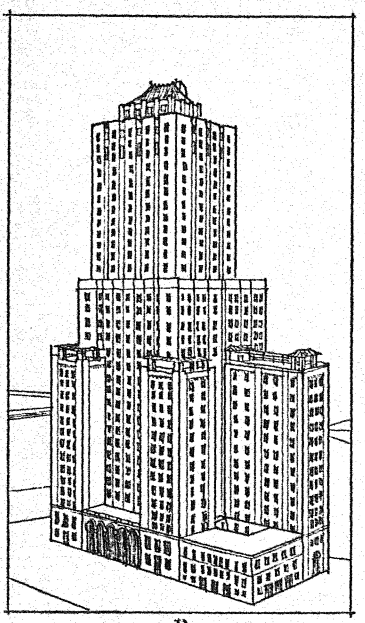
applying the principle of punctuation to a street façade. For the purpose of this illustration the number of bays in the quadrant has been much reduced, but the reader will recognize what perfect terminal features to the long façade were provided by the beautiful building on the right and the small tower-like projection shown on the left of the diagram. In the quadrant itself each row of windows, vertical and horizontal, was adequately stopped, while in the end pavilion the series of columns was closed at each side by the addition of a pilaster.

Fig. XX A shows a modern development of the tower form, which has some of the defects which characterized example XVII C, inasmuch as the tall vertical ribs are crudely cut off at random. Because its main vertical dimensions are thus indeterminate, the building is lacking in vitality, and although the clock-tower itself, at first sight, may seem to be the prominent crowning feature, it belongs to the centre of the building, which is completely hidden from view, and it cannot serve as a termination of the vertical lines, which so insistently spring from the main façades. Fig. XX B has a like blemish, and the receding dimensions of the tower show the same telescope formation which marred the design of XVII C. In Fig. XX C an attempt has been made to punctuate the tops of the receding wall surfaces, but in spite of this precaution the apex of the building presents in silhouette a ragged and shapeless form, resembling some great crag, fashioned fortuitously by the forces of Nature, and it thus fails to give us the impression of an architectural monument.

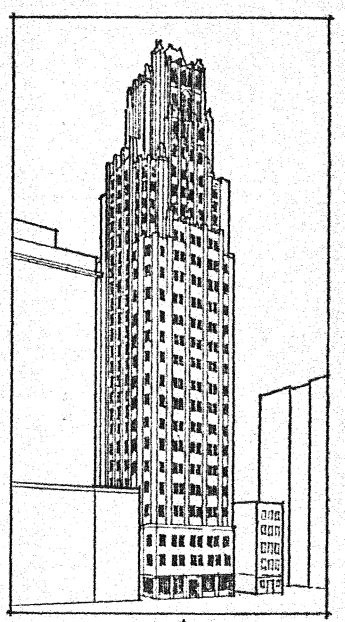
The apprehension of a principle of design such as that of punctuation carries architectural judgment to a point at which it is free from all unreasonable predilections for any one particular style of building. If a modern designer chooses to abandon all the traditional



A



B



C

FIG. XX

forms in favour of an entirely new set of architectural motifs, such an adventure would be regarded with the utmost tolerance and goodwill by those who accept the æsthetic philosophy which is being expounded in these pages—provided that the bold experimenter in question but consent to abide by one condition. He may find the most novel solutions of the problem of how to punctuate an architectural element, but punctuate it in some manner or other he certainly must if he is to design at all. The possible variety of punctuations is infinite, so it cannot be held that in seeking to impose this obligation upon the artist we are submitting him to a narrow or painful restraint. And a similar injunction is needed if we are to safeguard the other grammatical principles which the authority of reason should render sacrosanct.

For instance, the satisfying artistic result which comes from a compliance with the canon of Number can be obtained in innumerable ways which may be entirely novel, but a flagrant violation of this canon will lead to a discord, inexcusable wherever it be found; for no matter how anxious a designer may be to proclaim his originality, he will not be able by the arts either of persuasion or of bluster to obtain welcome acceptance of a feature which is fundamentally inorganic and antagonistic to the laws of Nature and of Mind. Unity we must have in designs both old and new.

Let us now glance at Fig. XXI. In this modern building we see that the columns are punctuated at their upper but not at their nether extremities. The capitals provide quite pleasant delimiting features. Each column has a head, but, alas! it has no feet, or rather such feet as it has seem buried in the ground, and one is harassed by an uneasy feeling that the sinking process is not yet over. The colonnade happens to be copied from an example in which the bases of the pillars had, by a mischance, been buried to a

certain depth, and the architect of the building displayed his originality by incorporating these truncated pillars in his own design. But the result is most unhappy, and it shows how disastrous it is to revolt quite unintelligently against established architectural forms which owe their prestige to the element of vitality derived from their compliance with an organic principle of design, such as punctuation. It is true

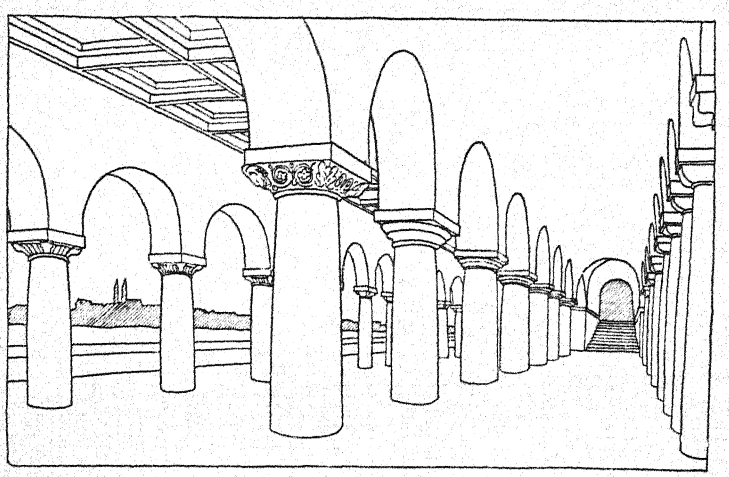


FIG. XXI

that the Greek Doric column had no base, but then its capital was also very simple, and its height was in a measure stabilized by its necessary relation to the entablature. In Fig. XXI, however, the pillars seem cut off at random, and what makes matters worse is that the floor has in no manner been inflected to take account of their incursion. If the pillars are too insensitive or churlish to acknowledge the floor by modifying their extremities when they come into contact with it, let the floor at least show them a good

example by modifying itself in order to defer to the pillars. This it could easily have done by raising itself, if only a very slight step, in order to mark the line of the arcade; or if this had been inconvenient, even a

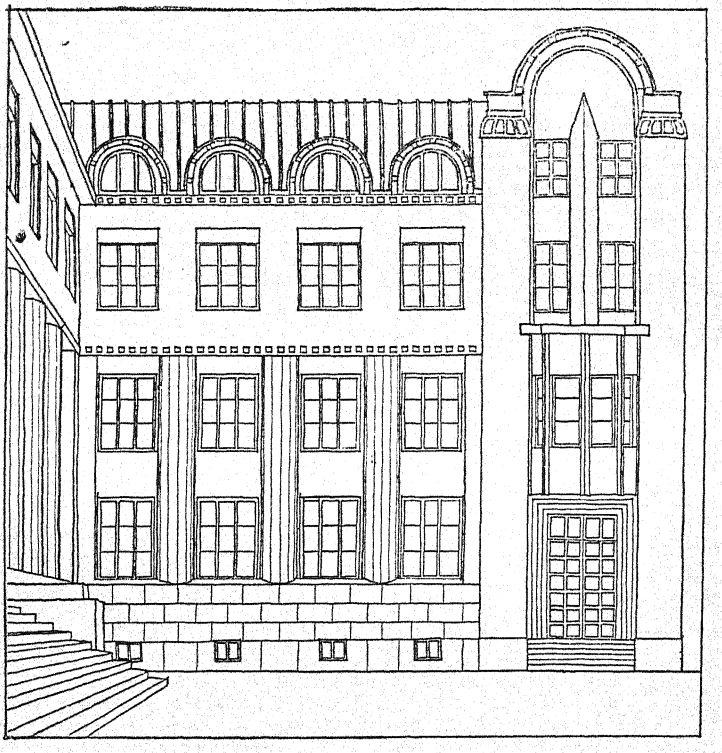


FIG. XXII

coloured band flush with the floor would have served as a slight connecting link between the bases of the pillars and the ground which supported them.

Fig. XXII shows columns which are devoid not only of bases, but of capitals as well, and the effect is even worse. These crude cylinders have made their en-

trances and exits entirely without ceremony, they begin and end ungraciously; the basement has no knowledge of them and the superincumbent wallage, while, indeed, it takes notice of the intercolumnation by having its windows centrally above the bays of the storey below, and has a slight punctuating ornament at its base, is not strong enough to resist the upward springing lines of the fluted cylinders, which in all decency should themselves have been punctuated in order to break the violence of the transition between

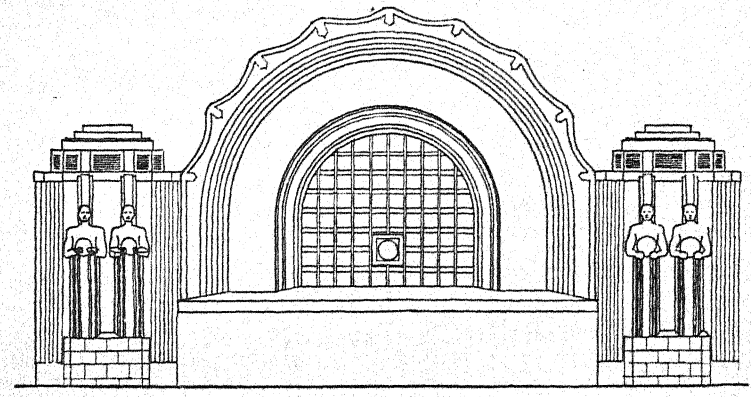


FIG. XXIII

the vertical and horizontal members. And if the reason which would seek to preserve the amenities of thought (for thinking is itself an art governed by certain inevitable rules arising out of the constitution of the mind) should fail to carry conviction to some of our architectural innovators, let them pay deference to the authority of animate Nature, an agency which has had considerable experience in the creation of forms where the marriage of matter and mind has been completely consummated. Animals and plants of both high and low degree invariably obey the principle of punctua-

tion. The trunk of the oak tree spreads at its base, the blade of grass comes to a point; every limb of every animal which one can name is subtly modulated at its extremities. If some of the 'modernist' architects would take a lesson from the horse's hoof, or meditate upon the bullrush, they would cease to shock our senses by confronting us with forms of building entirely devoid of sensibility. In Fig. XXIII we have a new building which owes its virtue entirely to the elaborate punctuation of the main semicircular feature of the façade. Unfortunately, however, the punctuation is carried down too far, so that it not only separates the building from the sky (which was a necessary achievement) but it emphatically separates it from its lateral appendages which had every right to be considered integral with itself. These latter, whose dual statues are a flagrant violation of the canon of Number, are too loosely joined on to the central portion. It is true that what may be described as the 'flounce' of the main façade stops at the string course, which punctuates the wall of the pylon, and thus is an example of inflection; but it does not compensate us for the discord which arises owing to the formal disregard of the most important point in the semicircle, namely, its centre. This point happens to be level with the most critical place in the curves, where they run into the vertical lines which are tangential with them. In fact, the diameter of the semicircle has such an organic relation to the façade that in some manner or other the design should have been inflected to take account of it. And because the pylons ignore this diameter we receive the unpleasant impression that the whole centre portion of the façade has slipped downwards.

Fig. XXIV shows a Chinese building which, to European minds, has greater elements of novelty and surprise than any of the designs which spring from

the reaction against the traditional forms of classic architecture. It will be observed that the horizontal eaves of the roofs are *punctuated* by being tilted upwards.

The styles of architecture indigenous to China and Japan have as their most prominent characteristic the curved and tilted roofs, whose graceful forms have inspired innumerable artists to pictorial composition.

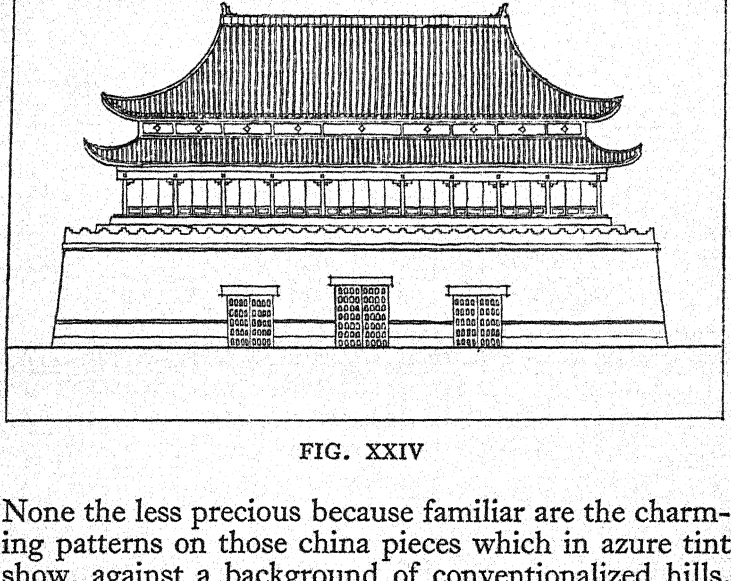


FIG. XXIV

None the less precious because familiar are the charming patterns on those china pieces which in azure tint show, against a background of conventionalized hills, trees, water, and sky, that romantic architecture of wood first created by the genius of the Orient. I invite anyone to take a plate of such china and substitute for the curved roofs of the temples and pagodas therein depicted the crude rectilinear gables and hips we see in our European buildings, and then to consider how much would remain of the beauty and sensitiveness

of the design. The obvious fact is that these rectilinear forms cannot blend satisfactorily, either with the landscape or with each other, because they are insufficiently *punctuated.* Sir Christopher Wren gave it as his opinion that the only roof fitted to be the dominating feature in a design was the dome, and a roof made of the intersections of planes covered with slates ought to be kept low, and had best retire behind a parapet. If such a roof, however, raises its head and seeks to become the climax of the architectural composition, then it must be elaborated and refined, and attain that state of self-consciousness which can alone be brought about by the method of punctuation.

Fig. XXV shows some elementary forms which illustrate the particular quality of design which is obtained by the simple process of terminating straight lines by a curve. Let us compare diagram A with B and C. The first is an extremely simple combination of members, which yet has significance. One glance at it suffices to convince us that it is a finished conception; it is, in fact, architecture. The cross-bar is made self-conscious of its extremities by means of the upward tilts which, however, only begin *outside* the rectangle bounded by the upright members of the composition, and thus not only punctuate the cross-bar but also inflect it to take account of the presence of its sub-structure. Had the curvature begun at an appreciable distance either before or after the bar had crossed the uprights, the design would have lacked cohesion. B, which is merely jejune, is improved upon in C, where the projections of the transome provide an elementary punctuation to the rectangle. The length of such projection is, however, indeterminate, and the transom itself is not inflected to take cognizance of the uprights. F shows an elaboration of C, inasmuch as the projections of the transom are now stabilized by being associated with a pattern of

small horizontal and vertical members which, moreover, perform the double function of conjugating the main uprights so that they form a pair, and inflecting them to bring them into relation with the sign-board, which, in this instance, provides the motive for the structure. D shows the ends of the transom turned downwards, and as far as the punctuation is concerned

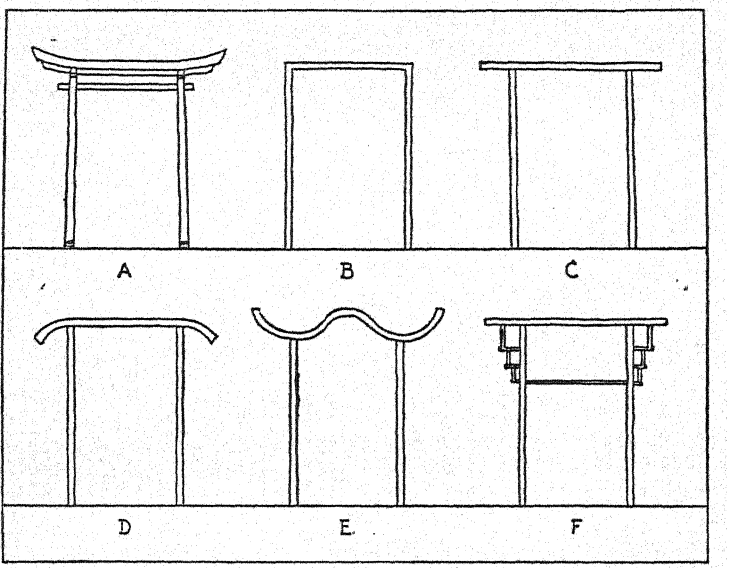


FIG. XXV

this shape is just as satisfactory as A, but while its *form* is unimpeachable it has a defect in its *subject*, and this subjectival defect is probably responsible for the fact that, in the architecture of Japan and China, transoms of gateways and eaves and ridges of roofs have never been allowed to droop at their extremities. In the first place, the upward tilt is more satisfactory because, being contrary to gravity, it implies strength and stability ; we can scarcely contemplate the droop-

ing form of punctuation with pleasure, because it suggests that the material is bending under its own weight, and if it has bent already it may yield still further. Secondly, and this is perhaps a more subtle point, the lines of the upward tilt, if in imagination we pursue them further, lead to some quite indeterminate spot in the sky, and we do not worry about the exact direction and ultimate destination of the tilted lines, for we are content to appreciate them as the quite limited formal punctuations of cross-bar, eave, or ridge ; but did these latter members droop at their ends, the curved lines, when continued onwards, would after a brief interval strike the ground, and at some definite point which would have a totally unnecessary and irrelevant relationship to the building itself. The consciousness of this fact would tend to destroy our pleasure in the punctuation. Moreover, the upward tilt has another advantage, in that it is much more conspicuous than the downward, and provides an easier means of attaining the necessary formal emphasis.

Any roof concave towards its exterior is more likely to blend with the dominant horizontal line of architectural composition than is one composed of planes whose intersecting lines impinge upon the ground at an arbitrary angle. For instance, in Fig. XXVI, example A is more pleasing than it would have been had the building shown the ordinary straight-edged gable, for the very existence of the curve suggests that an effort is being made to bend the lines of the roof into closer harmony with the horizontal. But even this has the fault that, inasmuch as the section of the roof is bounded by two arcs of a circle, its profile shows a uniform curvature, and the arcs seem cut off at random, and have no quality of punctuation. In B we see a segmental roof inflected into a shape far more significant than the crude arc of a circle, for here at its extremities the curve is bent upwards, not

merely to punctuate itself, but with the ulterior object of attaining a graceful accord with the line of the transom beneath it.

European critics of Japanese architecture have some-

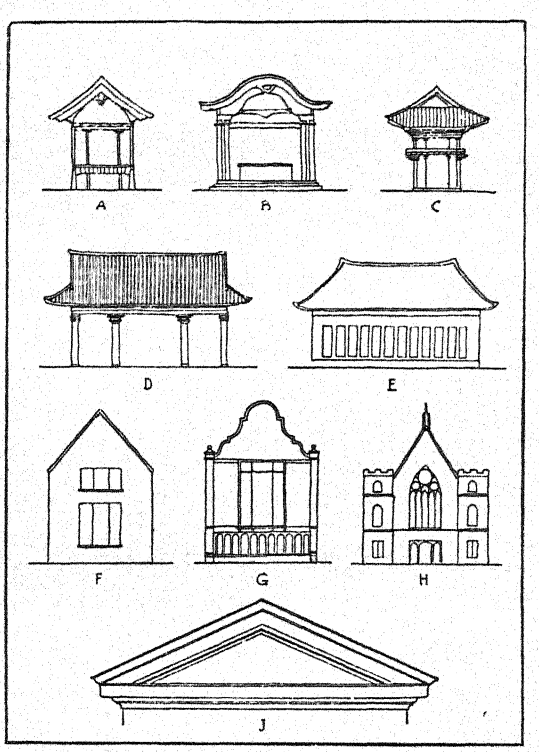


FIG. XXVI

times spoken as if these curved roofs merely indicate on the part of the Japanese a temperamental fondness for curves. But curves, like everything else, can be either right or wrong, and I have shown that it is possible to discover the reason which informs and justifies the tilted roofs of Japan. They are an example

of punctuation, and the fact that their purpose is made clear by referring them to this formal principle proves the universality of the grammar of design. Of the symbolic meanings attaching to the ornament found in the temples of Japan I do not speak, and it suffices for the present argument that the main characteristics of the Chinese and Japanese styles do not belong to symbolism, but are expressional—that is to say, in order to understand them we do not need to be Buddhists or to be otherwise acquainted with the life and history of the folk who created them, for these forms of building speak the international language of architecture, which can immediately be understood by applying to it the interpretative principles of Number, Punctuation, and Inflection. The use of the curved member in transom or roof can easily be abused. For instance, Fig. XXV E shows a quite meaningless form, a wave-line, which might go on for ever, and the curvature here does nothing to punctuate the transom.

In Fig. XXVI C the profile of the roof, already curved, receives an additional tilt at its nether extremity; in D and E the curves are used to punctuate straight lines. Meanwhile it is instructive to note that the crudeness of the plain gabled form F has long been apparent to European architects, and interesting attempts have been made to 'civilize' the gable. Example G, with the curved ramps on a wall which masks the gable is one solution; while H shows how, even if the gable be retained, punctuating features in the form of tower-like lateral appendages may be introduced with the object of reconciling the obtrusive triangular shape with the horizontal lines of adjacent buildings. The renowned architectural form shown in Fig. XXVI J gives yet another solution of the same problem. Here the sloping sides of the roof, although rectilinear, are limited and composed by being formed

into a self-conscious triangular pattern. In the pediment the junction between the horizontal and sloping members is most skilfully effected by inflecting their sections in such a manner that the sloping member, while being in accord with the horizontal in so far as it shares the mouldings of the latter, is yet suitably differentiated from it by the addition of the crowning moulding, which also serves to complete the profile of the cornice at either side of the pediment. These examples show that the historic styles of architecture in their several ways acknowledge the grammar of design.

Chapter III

THE CANON OF INFLECTION

THE canon of *Inflection*, like those of Number and Punctuation, is applicable to all the forms of architecture. I have already defined it as the principle which governs the relation of the parts of an object to the whole and the relation of that whole to what lies outside it. When a thing is inflected to take account of something else, a certain sensitiveness has been displayed, which has the precious quality of life itself. All the operations and dispositions of living things exemplify inflection. When one man meets another in the street and immediately stops and proceeds to shake hands one may say that he is *inflecting* his person in order to take account of the presence of his acquaintance; when a watch-dog barks at the approach of a stranger at the gate, he is also showing his sensibility by making formal recognition of something which is outside himself; when a steamer blows its siren on leaving harbour, although it has no thoughts nor pulsating blood nor complex nervous system, in an elementary way it seems to be imbued with life, it makes answer to its own changing circumstance and by one small symbol it becomes articulate. I have chosen these three analogies because they refer to things in motion; which display most vividly the characteristics of inflection. The complex art of manners is prolific of examples of formal acts expressing acknowledgments of the innumerable events which

occur in social intercourse. Military and civil ceremonial and the ordered movements of the drama, opera, and ballet, are all exercises in the artistic inflection of the human figure in motion. But is it possible that this vital principle may also find expression in forms which are stationary? The answer is that it undoubtedly can, and this has been abundantly proved by the examples already portrayed in the previous chapter, where various architectural features were shown to display a consciousness of their own extremities by means of certain swellings, contractions or other modifications which seemed to proclaim most emphatically to every one capable of lending ear to the great and universal language of architecture—'This particular element in my composition is now coming to a conclusion. I am aware of this event myself and I have also made you aware of it. The intellect which is in me here speaks to the intellect which is in you.'

Punctuation is but a special form of inflection; it is merely the inflection of an object to take cognizance of its own extremity or boundary. But objects can be made to take cognizance of other things beside these, and the means by which such additional sensitiveness may be attained will be examined in the following pages. It was a logical procedure, however, to isolate punctuation and give it the status of a separate grammatical principle, because punctuation has a special importance as an element in the concept of unity, and forms a convenient link between the canon of Number and the more complex principle of vitality which I have here described as *Inflection.*

Figure XXVII illustrates a new building whose architect has made an attempt to emancipate himself from the past. Does he also emancipate himself from the grammar, and thus fail to say anything coherent at all? Obviously not, for an analysis of the composition reveals several elements which illus-

trate the grammatical principles. The tower, for instance, is punctuated by the lantern which is itself again elaborately punctuated at both its top and bottom. Moreover, the marked difference in these two terminal features of the lantern constitutes an *inflection*, for instead of being symmetrically disposed

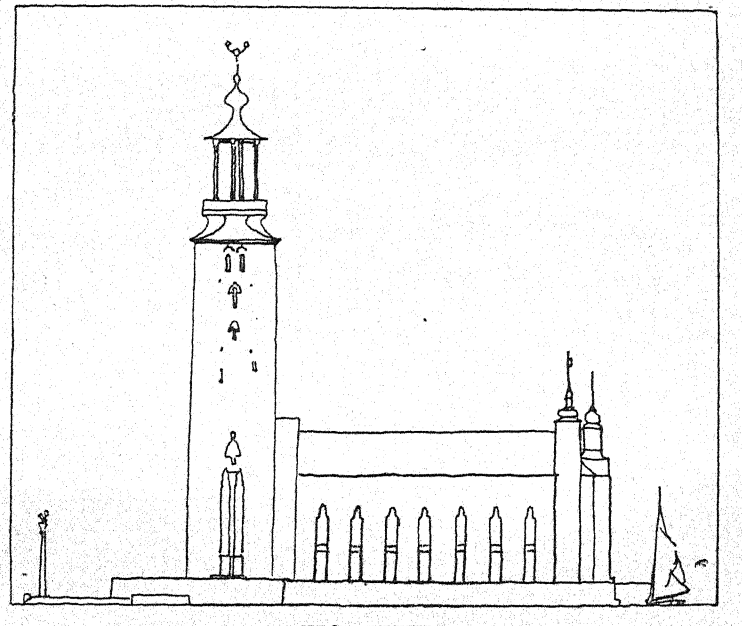


FIG. XXVII

about a central axis the lantern spreads out to join itself to the tower below while its roof first contracts and then expands a little, and eventually disappears in the flourish of its finial. Although the building stands upon a platform it is devoid of a lower punctuating member within the surface of the façade itself, for neither the tower nor the building adjacent to it is provided with a plinth. In the case of the tower,

however, one might argue that the doorway and two-light windows themselves satisfactorily accentuate its lower extremity, while at the same time constitute an inflection by means of which the tower takes account of the vertical dimension of the main building. Some degree of inflection is here clearly necessary, for the most important event in the life of that tower was when it made the acquaintance of the building next

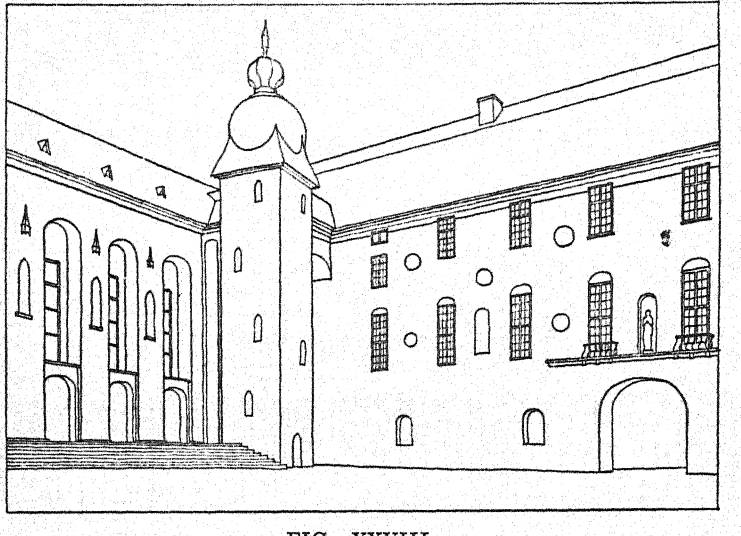


FIG. XXVIII

to it, so it would indicate a lack of sensibility on its part if it did not modify its form at the point where it becomes contiguous to this building. The inflection is here a slight one, being shown in the fenestration only, but it is somewhat strengthened by the abutment which prevents the horizontal lines of the roof from impinging too violently upon the flank of the tower.

In Fig. XXVIII we see an obvious lack of homo-

geneity between the façades. The arch on the right-hand side ignores the windows above it; the tower, standing aloof from the walls of the main building, has apertures out of scale with everything else. In fact, here contrast has been considered a virtue in itself. But while contrast is an element in inflection it is not the whole of it. Inflection implies not only the dissociation of elements to express differences in their function or locality; it implies association as

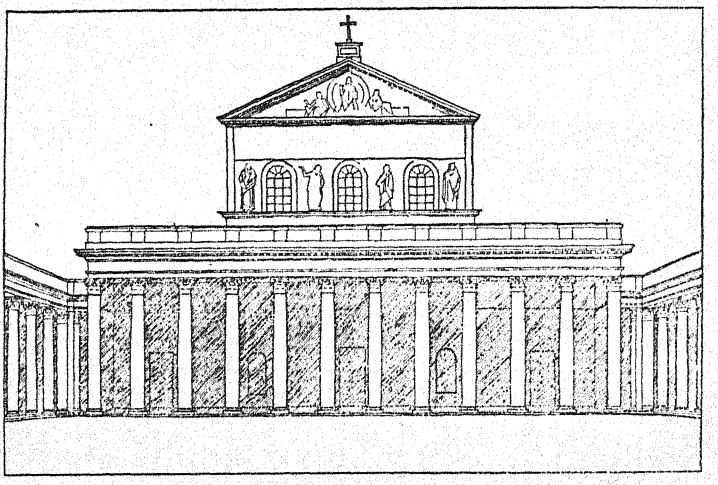


FIG. XXIX

well, so that we may say of all the parts of a design that they should have not only suitable differences, but suitable resemblances.

Fig. XXIX shows how two elements in a building, themselves highly developed, may yet clash, for the simple reason that one of them has not taken sufficient account of the other. The colonnade is not inflected to express its connection with the attic storey above, but continues on its course just as if it has no consciousness whatsoever of the important fact that over its

centre portion was a very prominent architectural feature. If the columns had been coupled at the points immediately below the lateral extremities of the attic, or, better still, if there had been a slight projection in the colonnade corresponding with and emphasizing the position of the attic, the requisite inflection would have been attained.

In Fig. XXX the façade above the ground floor

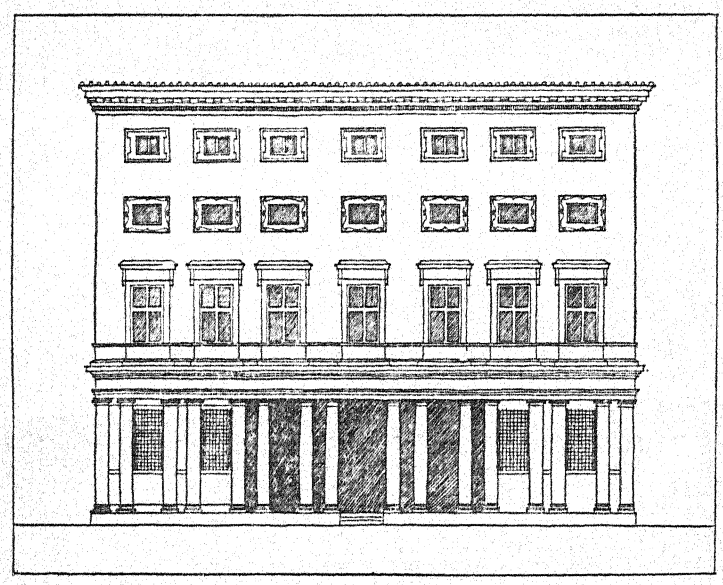


FIG. XXX

is inflected to take account of the recessed entrance by a broadening of the intervals between the windows immediately over this feature. The diagram in Fig. XXXI, however, shows that this inflection would scarcely have been sufficient unless the ground floor storey had been given an emphatic punctuation, preserving the recessed entrance from too intimate an association with the fenestration above, and unless also

this entrance had been rendered less conspicuous by means of the two pairs of pilasters at either side which support the free columns of the portico, and tend to give the lower part of the façade a measure of homogeneity.

In Fig. XXXII F the doorway seems to be an afterthought, for the façade without this feature shows

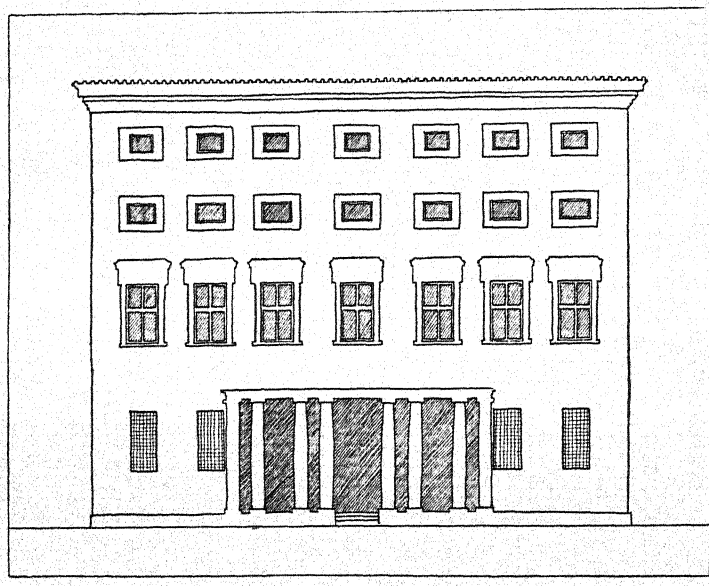


FIG. XXXI

complete symmetry. Here again, however, the string-course, which punctuates the ground floor storey and thus to a certain degree separates the doorway from the wallage above, slightly mitigates the offence of the latter in failing to inflect itself to take account of the doorway. In Fig. XXXII D the doorway is again an element of discord in the design, for it is too prominent a feature to be ignored by the fenestration above,

while the bay window is also too prominent to be ignored by the doorway. The degree of inflection is determined by the relative importance of the parts affected by it. For instance, in example XXXII A the hexastyle temple form receives a very surly treat-

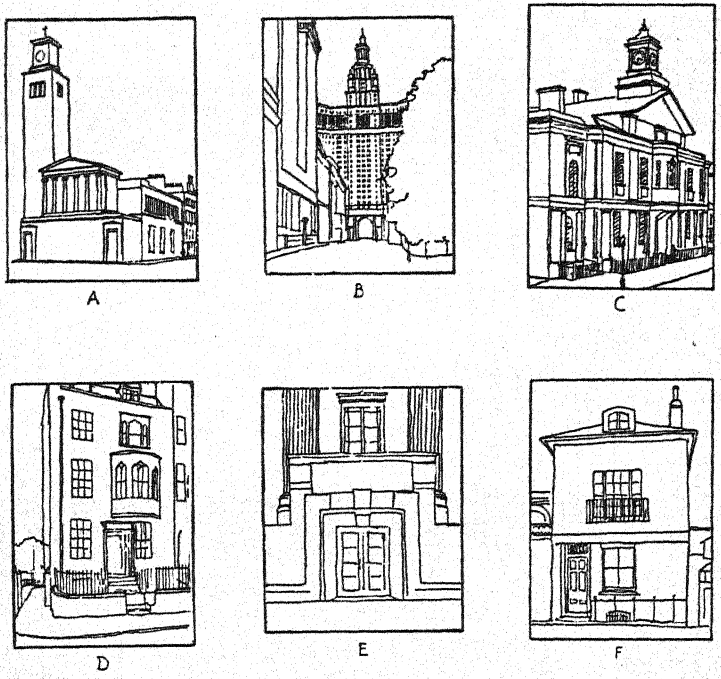


FIG. XXXII

ment from the basement, which not only equals it in height and thus produces an unresolved duality, but quite insufficiently inflects itself to take cognizance of its distinguished burden. The two doorways do indeed leave a blank wall immediately under the temple, but there ought also to have been a recess or projection allowing the cornice of the basement to bend itself

opposite the lateral extremities of the hexastyle front. Again, the symmetry of the main part of the composition altogether ignores the tower, which itself fails to inflect itself to acknowledge the existence of the temple. In Fig. XXXII B it is not the tower which is at fault but the main façade, which seems too homogeneous —that is to say, it is not sufficiently inflected to take account of the great cupola over its central portion : the projection is extremely slight, while the fenestration of the tower is a replica of that on each side of it. The result is that one can scarcely help entertaining the wish to break off the cupola, for this feature seems a surprise for which the main façade has not prepared us. In XXXII C the cornice sweeps past the extremities of the prominent gable, which also seems insufficiently connected with the storeys below, while in E a doorway breaks into a long row of classic columns, entirely uninflected to receive it, and so has the characteristic of an afterthought.

In Fig. XXXIII, not only is the façade beautifully punctuated, but it is also inflected to take account of the prominent central feature. Between this, however, and the doorway, there is perhaps too close a resemblance and we have a duality of interest.

The famous building illustrated in Fig. XXXIV owes not a little of its merit to the fact that it displays several kinds of inflection. In the first instance, the façade inflects itself to take account of the rotunda by projecting a hexastyle portico immediately in front of it. Do away with this portico, and it becomes immediately obvious that the façade would be inadequately prepared for the rotunda, and we should regard the latter as a surprise. Secondly, the columns of the rotunda are of a smaller scale than those beneath the pediment, and this expresses the different functions of these two features. The reader can easily imagine how displeasing the result would have been,

were the order of the portico duplicated in the rotunda. Next, it will be observed that the lateral extremities of the building are punctuated by pairs of pilasters, by means of which these important positions in the

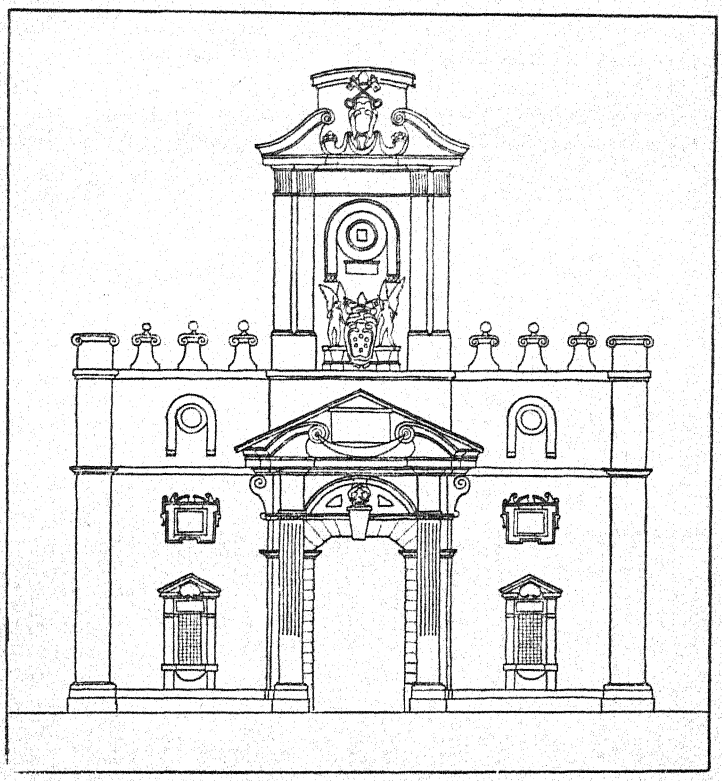


FIG. XXXIII

façade show their affinity to the pediment, and yet express a suitable difference from it. This similarity in difference, which it is one of the principal aims of inflection to achieve, is also manifested in the relation between the fenestration under the pediment and that

on the same level in the wings. The same type of window is repeated, with the subtle distinction that in the wings it is set within a niche. Needless to say, this building also satisfies the canons of Number and Punctuation—the central feature being broad enough to dominate the wings, which, however, to make assurance doubly sure, are conjugated to form a pair; this latter result being achieved by compromising their

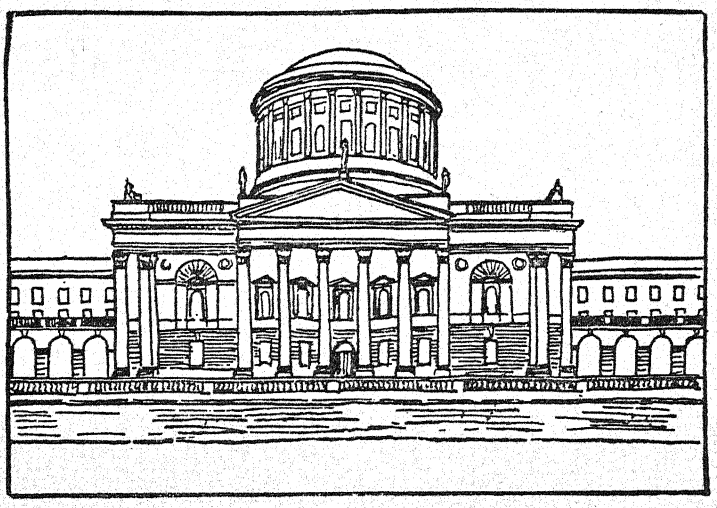


FIG. XXXIV

symmetry by the addition of the pilastered projections at the ends.

Example XXXV A, which, incidentally, is a most flagrant example of unresolved duality, has the further defect that the two towers show great disrespect to the church which is wedged in between them as in a vice. This latter analogy is suggested by the fact that a pair of pincers has the same lack of æsthetic relationship to what it holds as have these towers to the gable between them. They seem to be saying to the

gable, ' Run away, if you dare ! ' Excellent examples of towers which are formally inflected to take account of the buildings adjacent to them are to be found in the great Gothic cathedrals, where in almost every case the tower has an important subdivision precisely at the level where the parapet of the main building

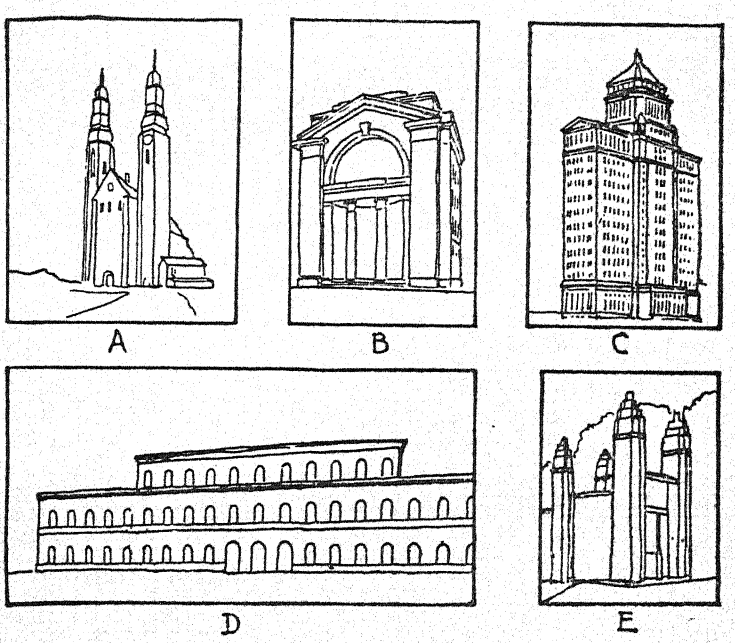


FIG. XXXV

impinges upon it, and is generally also united to it by points of accord at a lower level. Example XXXV E has the same defect as A, both the head of the doorway and the screen having a quite arbitrary relation to the pylons. A common effect of the absence of this kind of inflection is that the building seems physically unstable. In the instances before us, the panel above the doorway looks as if it were made to slide up and

down like a guillotine. The way to fix the panel would be to inflect the pylon at its level, so that its position would seem to be arranged for in the architect's original conception of the design. The interesting design of XXXV B shows a semicircular aperture above an Order. In so far as one can regard this as one indivisible pattern, it fits comfortably in the space allotted to it between the great pillars and the pediment which surmounts them. It is questionable, however, whether the very important horizontal lines of the entablature do not impinge too abruptly upon the vertical lines of the piers. If the lines of the entablature had been allowed to proceed after passing the piers, and had found expression on the flanks of the building, their temporary interruption would have been a quite justifiable æsthetic device. As it is, however, the flanks of the building seem insufficiently inflected to take cognizance of the striking composition adjacent to them. XXXV C is a pleasing and, it must be said, a somewhat rare example of a skyscraper, in which the main façade has been adequately inflected to prepare us for a central tower. In XXXV D we see a building imposing by reason of its scale and the simplicity of its parts, and yet it has the blemish that its upper storey is entirely unprepared for. We cannot exactly say that if it is taken away we should not miss it, because the residue would constitute an unresolved duality which would cry aloud for a third storey. Such an additional storey, however, would normally extend over the whole length of the building, and at present the design shows a great lack of sensibility in not being inflected to express the fact that the third storey extends to the central portion only. It may also be observed that the building has insufficient lateral punctuations.

Figure XXXVI A shows an attractive building in which the central projection with pediment prepares

us for the tower. This latter feature has the additional subtlety that the diameter of the small dome which surmounts it is reflected on the tower by means of small pedimented projections of width exactly corre-

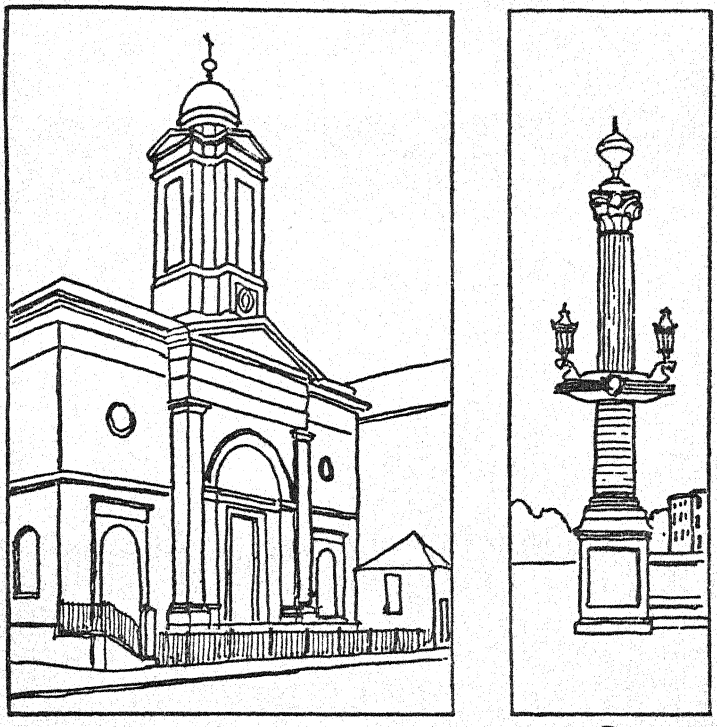


FIG. XXXVI

sponding to its own dimension. Moreover, the string-course which goes round the building takes up exactly the diameter of the arch above the doorway, thus giving to the façade the kind of homogeneity which was lacking in example XXXV B.

In Fig. XXXVI B the designer appears to have

recognized the arbitrary position in which the lamps are fixed to the column, for he has tried to inflect the latter by placing annulets underneath the lamp supports, instead of the normal flutings, which continue above. Thus he hopes that the lamps will not appear to be about to slide down the column. The result is

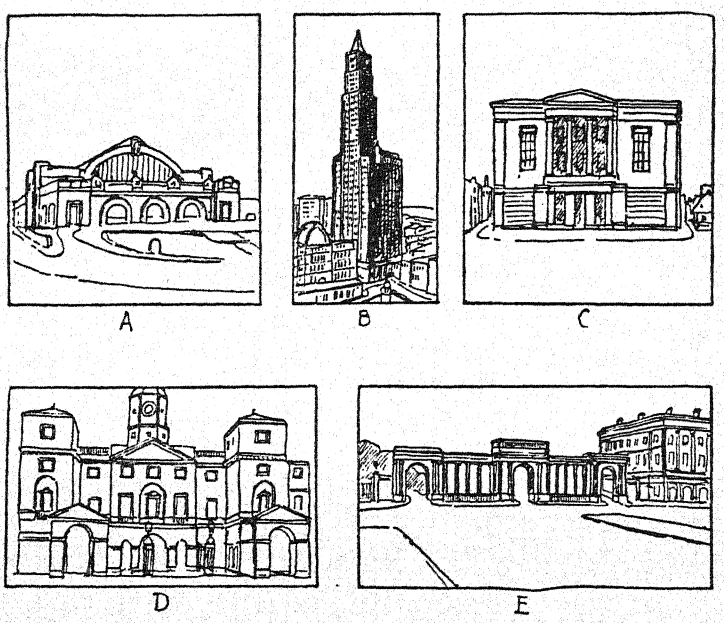


FIG. XXXVII

not satisfactory, however, because, while a close inspection may reveal the annulets, seen from a little distance away the inflection is invisible. In XXXVII A the great vault of the railway station is acknowledged in the front façade, for this latter has a central part exactly corresponding to it in width and properly punctuated by small projections. In B the great tower broadens out quite unexpectedly at what seems to be

an arbitrary point, and although its fenestration does undergo a momentary change at the level of the top storey of the main building, the inflection seems too insignificant to perform its æsthetic purpose. Example C is satisfactory, in that the pediment with its four columns is adequately prepared for in the basement. The beautiful designs XXXVII D and XXXVII E have this in common, that they both illustrate the inflection, which consists in the organic union of similarity and difference. In D the two wings are united to the central projection by sharing with it a small rectangular window over a larger pedimented one set in an arched reveal, the central feature achieving its proper distinction and priority over the wings by adding to this feature two similar small windows on its upper floor, and beneath them two taller rectangular windows, which suitably express their difference from the central one set in the arched reveal by forgoing the pediment adorning the latter. In E the central feature again partakes of the character of the wings, except that its archway is made to appear more important by broadening the interval between the pairs of Ionic columns on either side of it. In addition, the centre feature has a small sculptured attic, which gives it pre-eminence over the blocking courses which surmount the wings.

In XXXVIII A the duplication of the pediments is an obvious blunder, causing not only an unresolved duality, but suggesting that the top pediment was not aware that its difference of function ought to have dictated a form of expression also different from that of the feature underneath it. This is another example of insensibility. In B the wings have made a gallant effort to inflect themselves to take account of the vertical dimension of the columns, which is taken up by incised panels. These latter, however, suffer from the defect that they are more visible upon the drawing board than in reality. In C the façade takes account

of the arcade by inflecting itself at its extremities by means of a slight rusticated projection. In this case the inflection is also punctuation. It is a little unfortunate, however, that the top window is repeated not only over the arcade but in the wings as well, where one would have naturally expected one of those subtle

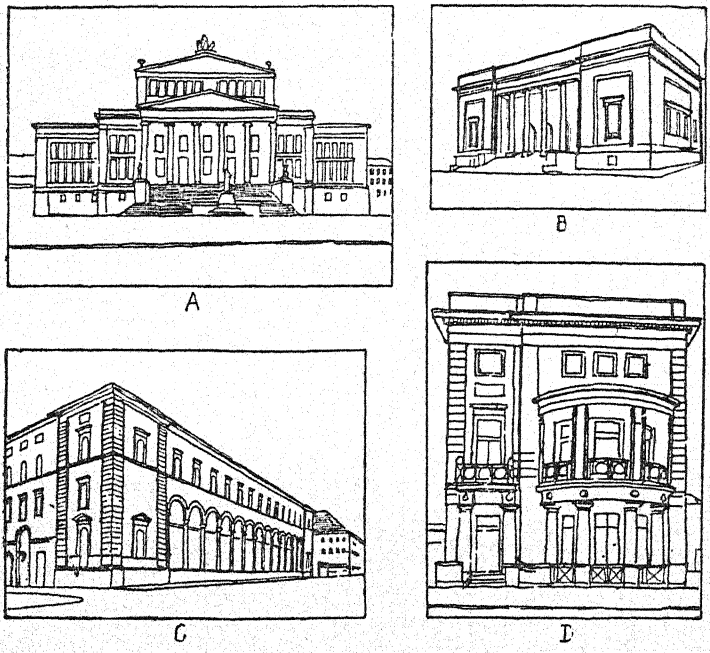


FIG. XXXVIII

variations expressing similarity in difference. When that row of windows crossed the rustication, it was justified in celebrating this important event by some little artistic flourish, and its inability to do so must be counted to its discredit. Example D shows the proper use of symmetry. The façade inflected itself in two important ways. In the first instance, that

part of it which carries the large segmental bay is isolated by means of a slight projection. Thus, one element of symmetry is complete, but in the subordinate part of the façade the symmetry is compromised by reducing the width of the rustication on the right-hand side. Thus the smaller element nestles

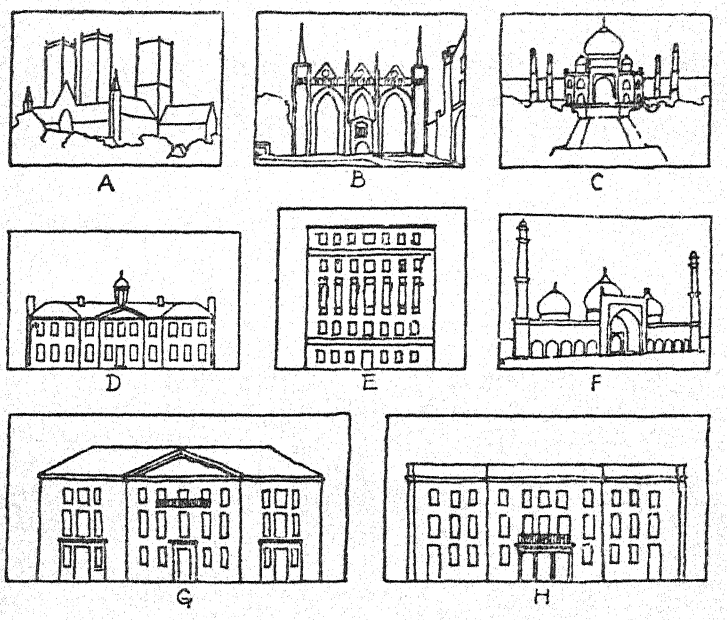


FIG. XXXIX

up to the greater instead of expressing an arrogant self-sufficiency, as it does in example XXXIX G, where both the wings are too independent of the central feature to form an organic unity with it.

In XXXIX H these wings are inflected by the simple process of conjugation, and it will further be observed that the verandah, which in XXXIX G is quite arbitrarily placed, in H is united to the porch, and also has a special position in that it embraces three

windows distinguished from their neighbours in having a smaller interval between them. Example XXXIXA is given here as one of the very few instances in which our mediæval forefathers failed to inflect a façade in order to take cognizance of an adjoining tower. XXXIXC is remarkable among other things for the subtle way in which the minarets, although quite separate from the main building, yet by their subdivisions are inflected to take cognizance of it. In F, another Indian building, the minarets are inflected at their junction with the main structure, and it may be further observed that the line of ornament which punctuates the main façades exactly corresponds to the level at which the great doorway starts upon the curve of its arch; so this latter, in spite of the fact that it appears to be somewhat isolated by its rectangular framework, yet succeeds in taking cognizance of its surroundings. The domes behind form a grand trinitarian composition, as does also the group of gables in B. This composition has the agreeable subtlety of being inflected to take account of the prominent doorway, by means of making the central gable narrower than the others. Had all three gables been of equal width, it is easy to imagine that a great doorway underneath only one gable would have been somewhat of an intruder. The remaining diagram, XXXIXE, is an example of false symmetry, but in this instance the symmetry is about a horizontal axis. It is very obviously wrong that by its fenestration this building should be similarly disposed to both ground and sky, and should show a pattern so insensitive to its surroundings that it could be turned upside down without anybody noticing the difference.

So much for the principle of Inflection. In the preceding discussion it has perhaps been established that the Grammar of Design does not provide an easy method of architectural composition; it is rather the means of putting before us an ideal. We cannot

possibly inflect each part of a building to make it take account of every other part. Certain works of architecture have been described as so perfectly designed that no single element in them could be changed without destroying their harmony. But this is an hyperbole of speech. It is not given to a building to attain such vitality as that. If we achieve even a little inflection we have done much. The diagrams shown in this chapter will have fulfilled their object if they prove that when a measure of inflection is indeed exemplified in a building, the result is good and satisfying, and when inflection is conspicuously absent there is a blemish which surely militates against our pleasure in the design. Inflection will thus be shown to be something desirable in itself, and with such knowledge the artist may engage upon the difficult and fascinating task of applying the principle to the design of his building, in the confidence that this process will result in a measure of formal beauty quite independent of the ' style ' of architecture in which he happens to be working.

Chapter IV

THE PLAN

EVERY architect when he designs a building naturally envisages plans, sections, and elevations at the same time. The main faults of an elevation very often have their corresponding faults on plan, and this fact should help the architect, for a realization of it will cause him to alter his plan before he has superimposed upon it elevations and sections radically wrong from the start.

The plan of a building is not entirely determined by the needs of its occupants, for it rarely happens that an architectural programme has only one convenient and economical solution. A skilful planner can generally satisfy his client's requirements in a variety of ways, and of these he must choose one, and one only. What is to be his criterion of judgment, then? Obviously it must be an æsthetic criterion, for the practical one has failed to give to the design the requisite of finality. The reader will doubtless be able to anticipate the nature of the æsthetic criterion which I am about to apply to plans. Of the various solutions of the architectural programme I affirm that the best is the one which most completely conforms to the principles of Number, Punctuation, and Inflection. Obviously the formal virtues which result from the application of these principles cannot redeem a plan which on practical grounds is to be condemned; the faults in such a design, however, will not be formal,

but subjectival. The nature of the subject matter of planning, however, is outside the scope of my theme, for I am here merely concerned to discover how a given subject matter can be rendered grammatically.

Plans are both large and small, and the larger plan often contains the smaller as a sub-unit of itself. It is a condition of success in design that we consider the larger unit first, so that when we come to the planning of the smaller this latter does not take to itself an independence such as would ignore its relation to what lies outside it.

The formal virtues of a plan largely depend upon the degree of its harmony with neighbouring plans. This is not merely a social, but is also an æsthetic phenomenon. The desire to achieve such a harmony indicates quality of mind which may be described as social, but the satisfaction of this desire leads to a result which has its purely formal aspect. When once the area to be occupied by any given plan has been determined on practical grounds, the outlines of the plan will often in important respects be determined by the position of the buildings adjacent or opposite to it. The external harmony must be achieved before we begin to study in detail the internal harmony. It is because this necessary rule of planning is so frequently disregarded that our senses are outraged by aggregations of buildings which have a certain degree of internal harmony, but which together contribute to an appalling discord. I have therefore taken as the first of my illustrations a lay-out plan which, whatever its faults may be, will serve to exemplify some of the qualities which belong to a formal plan.

Fig. XL shows a small factory town designed *in vacuo*. The degree of its suitability to its subject I need not discuss. It will be observed that adjoining the factory area there is a closely built-up section comprising streets, quadrangles, and other formal

shapes. Beyond is a recreation ground, which also serves an area containing more houses, disposed, how-

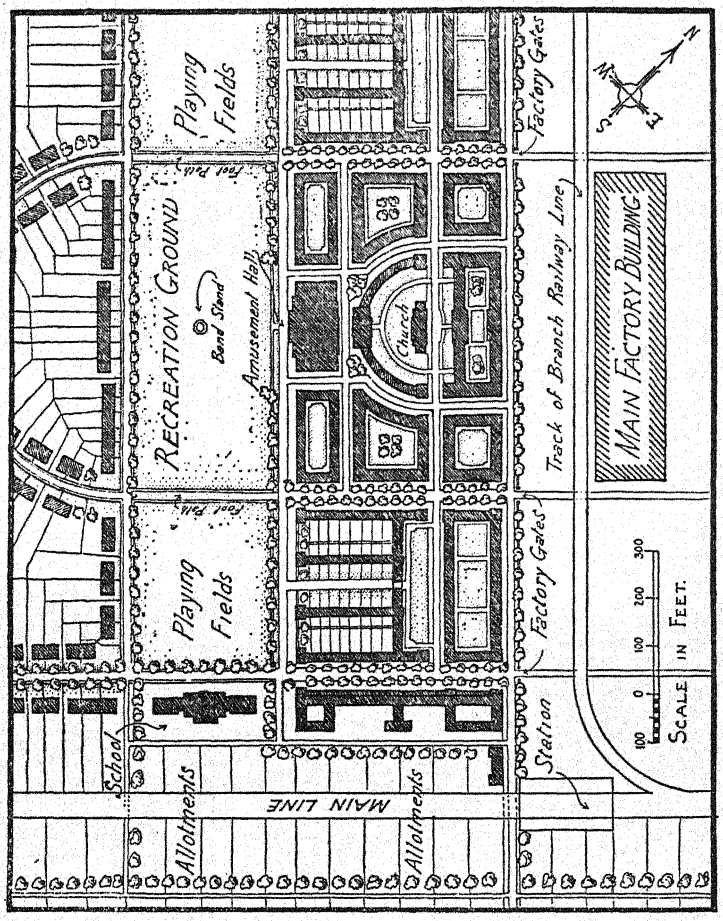


FIG. XL

ever, in open development. This is obviously not a natural town that grew by a slow process. If it came into being at all, it could only do so at the bidding of a despot, or some public body which had assumed

despotic powers as far as architecture was concerned. A certain degree of variety, however, has been attained in the disposition of the formal shapes, which are perhaps worth discussing, in so far as they exemplify the principles of Number, Punctuation, and Inflection. The open space between the two built-up areas is divided into three portions, of which the central is the largest. This does not seem a very exalted virtue in the plan, but very little consideration will suffice to show how much the open space would have lost in attractiveness if instead of being divided into three parts it had been divided in two by a central path. By such a treatment the open space would have been deprived of its unity, and even the least observant of those who were accustomed to make use of it would be conscious of the resulting discord. Other examples of the principle of Number are to be found in the tripartite subdivision of the central group of buildings comprising nine blocks and a church. Here again there is a centre of interest to which the lateral groups are made subordinate. Each of the boundary roads of this section is divided into three parts by cross-roads, but the nature of the division of the road adjacent to the recreation ground differs from that of the roads by the side of the factory area. This is because the pattern of the blocks has an inflection which expresses the fact that the recreation ground and the factory area are two very different things, so any attempt at symmetry about an axis parallel to the longer dimensions of both these areas would have been a cardinal error in design. To the left and right of this central group are blocks, each with four long wings, united at one extremity by a transverse terrace. Here, again, we have a tripartite formation, and we may easily imagine how unsatisfactory the lay-out would have been had there been only three of these wings, the two external ones

equidistant from the centre one; for here the three terraces would have failed to comprise an architectural trinity, because the duality of the courts they enclose would have impressed the spectator still more forcibly. The canon of punctuation finds expression at the extremities of the four terraces, each of which comes as it were to a head at the point where it impinges upon the road. It will be observed that while the intermediate punctuations are symmetrical about the axes of the terraces, the lateral ones are conjugated to form a pair, and so still further unify the group. A similar phenomenon occurs in the crescent, whose arms are punctuated by the small square blocks at each end of the diameter of the semicircle. The building opposite the church is inflected to take cognizance of the crescent, for on each side it has projections exactly in front of the blocks which terminate the latter, while it has another projection at its centre which pays deference to the church itself. If either of these inflections had been absent, it is clear that the three buildings could not possibly have formed a companionable group. If the crescent had been built first, it would have been incumbent on any building owner who erected a structure opposite to it to complete the pattern so emphatically begun; while if the crescent had been the new-comer, it would be equally clear to its designer that the extremities of the hemicycle could have no more fitting position than immediately opposite the lateral projections of the existing building.

This is formal architecture, and it acquires a quality of inevitability which, while it rests and pleases the mind, is apt to have a subjectival fault, if the element of repetition and regularity in the plan has no corresponding relation to the elements comprising the subject. The principles of Number, Punctuation, and Inflection, however, can be made to lend vitality to

compositions which have partly been determined by chance.

For instance, in Fig. XLI, the top row of houses, in being subtly *punctuated* at its extremity, is really much more formal than the opposite row, which is a mechanical series cut off at random; it seems to be conscious of its own termination, and by gradually proceeding from continuity to detachment it helps us to appreciate the fact that we are leaving the town behind us, and are about to enter a more rural locality. The bottom row should obviously have been terminated

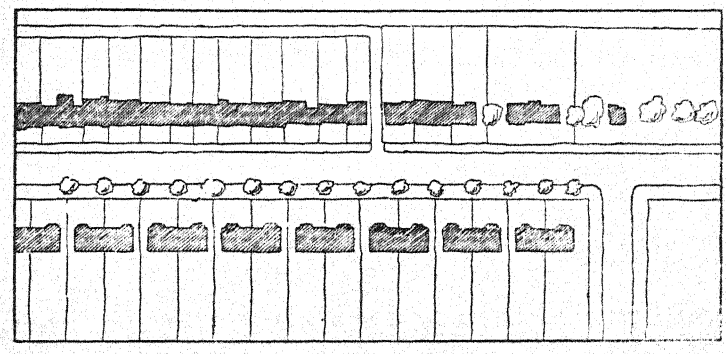


FIG. XLI

by a larger house of slightly different design from its neighbours. Then it, too, would, in a certain measure, have become self-conscious, and would have acquired a little vitality. There is nothing wrong in the fact that it is composed of repeated elements. This condition we may well suppose belonged to its subject, for architecture, just as much as dress, achieves significance through uniformity, which is just as important and necessary an element in its expression as is variety. The row of repeated houses, however, does not become a formal composition until it has the attribute of unity. In this case the unity is conspicuously absent, for each

pair of houses is a duality, and has symmetry about its central axis, and does everything possible to separate itself from its neighbours. Two formal elements, however, even this row possesses, for at least the houses are parallel to the road, and they have the further inflection that the fronts are different from the backs. In Fig. XLII the houses in the lower half of the diagram have not even this merit, and at the road junctions there is a further discord, in that the flanks of adjacent houses have no formal relation to each other. To place the plans askew, with the corner of one right

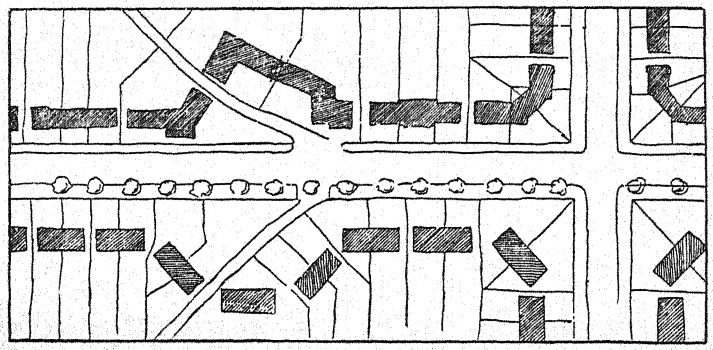


FIG. XLII

opposite the centre of its neighbour's flank, is to violate the canon of inflection in the most flagrant manner. Yet the pairs are of equal size, and exactly similar. In this case the element of repetition leads not to unity, but to discord, because the *position* of the corner pair calls for an inflection, which is here absent. The corner blocks at the opposite side of the road, while facing diagonally, yet have their side elevations normal to the road, and parallel to the flanks of the adjacent blocks, and in thus bending round they have *inflected* themselves to take account of the presence of their neighbours. Again, where three pairs of houses are

recessed to make a ' dent ' in the row, the symmetry of their arrangement belies the existence of the path which runs obliquely across this particular area. Opposite, it will be observed that a similar oblique path caused the cottages to assume a configuration by which they show their consciousness of the lane which passes so close to them. Even though this particular group may be quite laxly composed in other respects, by virtue of this essential element of formality it is architecturally superior to the symmetrical and repetitive arrangement on the other side of the road.

In planning, therefore, consideration of lay-out should invariably precede any attempt to introduce the internal harmony of the individual building. Formality in the lay-out can never lead to dullness, because it is born of intellect, which is the true and exact opposite of dullness. There is no end to the modulations which we can introduce into a plan as soon as we begin to inflect its parts. We can inflect them again and again to take account of every fact and circumstance which belong to their subject. The process is limitless.

There is one obvious respect in which a plan, if it be not accompanied by sections and elevations, may fail to indicate the true character of a building. The relative heights of its various parts, although they may be suggested by the varying thicknesses of the walls and foundations, are not shown with exactitude. In the following groups of diagrams, therefore, I am dealing with compositions of buildings which presumably are of uniform height, for this convention will simplify the application of the principles of Number, Punctuation, and Inflection, to the design of plans. The reader will easily imagine the additional subtleties of composition which would be made possible if the different parts of the buildings also varied in height.

Fig. XLIII A shows two long blocks of buildings whose conformation at first sight suggests an unresolved duality. It must be remembered, however, that in this instance the two blocks are the boundaries of a street, and the street is a unity. If these blocks had been ' in tandem', their duality would then have caused offence, because the area between them would be too unimportant to constitute a third member of a trinity. It is therefore necessary to distinguish between a composition in streets or courts, and one in which the unit is the building itself. But it generally happens that by punctuating and inflecting the buildings abut-

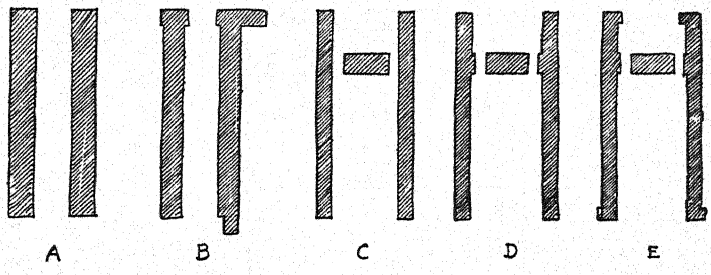


FIG. XLIII

ting on a street or court we also punctuate and inflect these open spaces themselves. Example XLIII B shows two blocks facing each other but having different terminations. These differences, however, are in a certain measure composed, for the right-hand wing although longer than the left is inflected to take account of the extremity of the latter.

In XLIII C we have a simple architectural theme —the placing of a block between two other longer blocks which run in a direction at right angles to its own. The composition is extremely crude, for the centre block seems to be floating about; there is nothing to fix it to the lateral members, because these

latter are not *inflected* to take cognizance of it. But even this design, bad as it is, would have been worse still if the middle block had impinged upon the others at their centres and thus cut the composition in two. In D the lateral members have undergone a slight inflection in that they have a projection exactly opposite the centre block, which now no longer 'floats', but has a fixity of position. In E a further improvement is introduced, because the lateral members, whose length had previously been indeterminate, are now punctuated at their extremities. Moreover, the

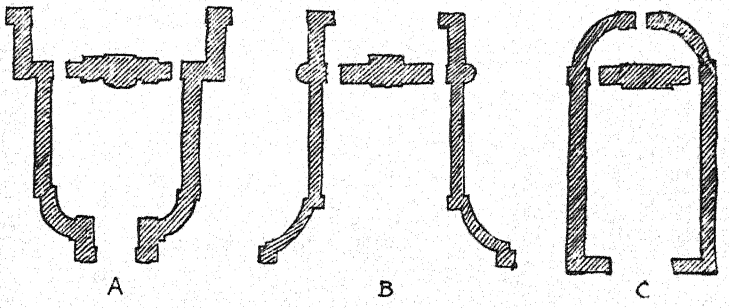


FIG. XLIV

punctuation at one end differs from that of the other, thus expressing an inflection whereby the group shows its consciousness of the fact that one court differs from the other in proportion. But XLIII E still has a blemish, because the *backs* of the lateral members are unconscious of the centre block, while even the elevations towards the enclosure do not show the degree of recognition which the occasion seems to demand. It is as if a man had greeted the home-coming of his long-lost brother with a perfunctory nod.

In Fig. XLIV A the two side members of the group step back at the points where the centre block meets them, and obviously this conduct on their part does

credit both to themselves and to the pivotal building, which gains in importance by the new disposition. The wings, by being thus set back, are in a measure conjugated, and the process is carried further by the curved ramps, which tend to close in the court at the other end. It will be observed that at the entrance there are further elements of conjugation and inflection. The centre block also has, in addition to several other inflections, one which expresses the fact that it is differently disposed towards the two courts. In XLIV B the conjugation of the wings is effected in the opposite direction, while their back elevations have apses which reflect the position of the centre block. C is yet a third solution, in which the presence of the centre block is a signal to the lateral members to curve themselves in two quarter-circles. XLIV A, B, and C, are three out of thousands of other elaborations of the theme XLIII C. These elaborations are inspired by the Grammar of Design, and are the result of applying to a simple theme the canons of Number, Punctuation and Inflection, which are thus seen to be a stimulus not only to criticism but to creation. Of the architectural programmes which could suitably find expression in the forms XLIV A, B, and C, I need say nothing except that the nature of the programme will itself determine which of the innumerable grammatical interpretations of the theme should be adopted in any given case. It is sufficient to indicate that an infinite variety of forms is contained within the limits of the grammar. The difference between XLIII C and XLIV A lies in the fact that while the former was stiff and lifeless, the latter, as a result of the moulding of its parts in accordance with the grammar, has elements of sensibility.

Fig. XLV shows a few diagrams illustrating the composition of lawns and paths in front of a house. In A the lawns obviously form an unresolved duality.

B is still worse, because the separate units of lawn are further accentuated by circular flower-beds, and the lawn being square also lacks an inflection towards the house. C is more satisfactory in that the two sections of lawn are conjugated to form a pair. D is better still, the lawn being divided into one main unity supported by a pair of conjugated subordinate sections. In E the halves of the lawn are indeed

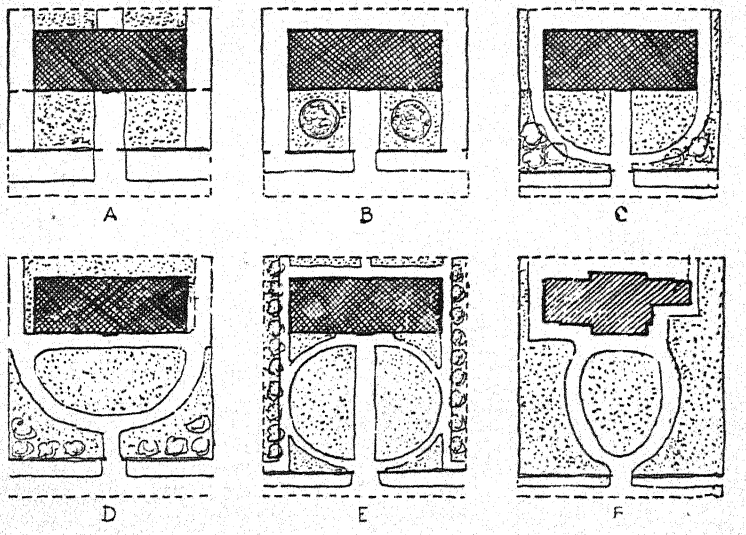


FIG. XLV

conjugated, but unfortunately they lack inflection towards the house; they are symmetrical about an axis parallel to the house, and such an arrangement suggests a point of interest at the centre of each side of the front garden, and as this centre of interest is non-existent, the form belies the subject. F is the most completely formal of the six examples, for here the centre lawn, inflected towards house and entrance gate, is supported, as is D, by conjugated subordinate

members, of which, however, the symmetry is compromised in order to take account of the shape of the house. But it may be assumed that the sub-unit of the façade opposite the central lawn has symmetry. This example shows that there is not the least need to employ geometrical shapes such as circles, ellipses, or rectilinear figures, in order to give expression to the grammar of design.

XLVI A shows a famous cathedral plan having a

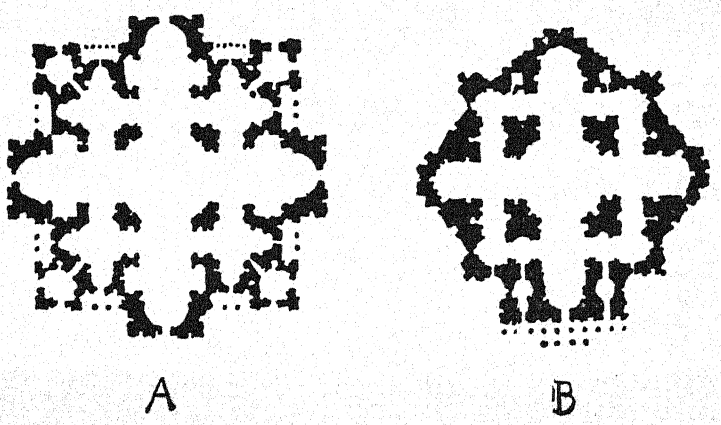


FIG. XLVI

pattern symmetrical about both axes. It was clear that the entrance was insufficiently expressed, and in a subsequent design (XLVI B) this defect was remedied, and the plan in being inflected towards the entrance had an increase of vitality. It was then realized that the high altar was not sufficiently recognized on plan, and a further inflection was introduced which is shown in XLVII A. This is a far more expressive shape than either XLVI A or B, though it suffers from the defect that the dimension of the dome is not indicated on the west front. XLVII B shows

another illustrious example where not only is the dome expressed on all fronts, but the plan is inflected towards both entrance and altar. In Fig. XLVIII, however, on each side of the central portion there is equality in the number of bays, and this arrangement suggests that the choir and nave are of equal value. This symmetry may be formally pleasing, but there

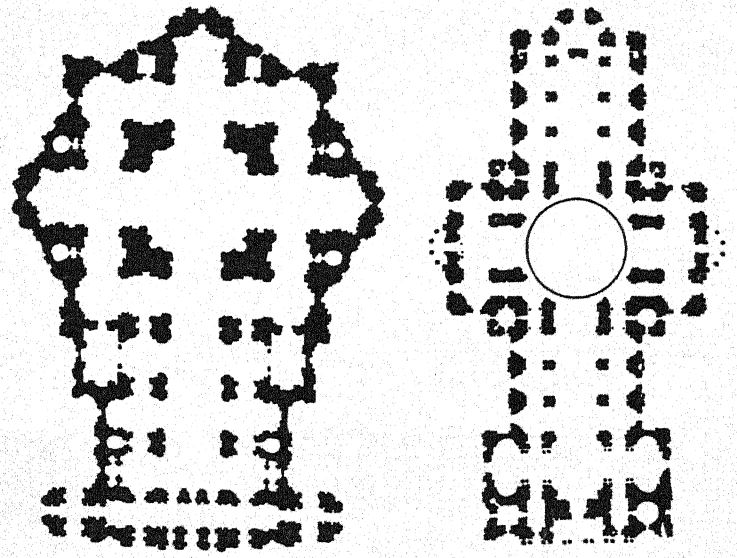


FIG. XLVII

remains the question whether it adequately expresses the ceremonial usages of the cathedral itself.

In planning, it is important to avoid duplicating areas or dimensions when these have different functions or are subject to different architectural treatments. For instance, in XLIX A the two large bays on both north and south façades are of equal width, yet one is rectangular and the other apsidal on plan. But as

the forms show an inflection one would naturally have expected a corresponding inflection in their principal dimension. Again, the large square vault opposite the entrance is equal and similar to that adjacent to the

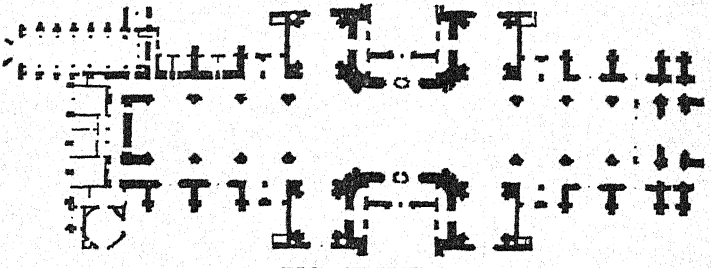


FIG. XLVIII

three apses, which differs from it both in importance and elaboration of treatment. This is clearly a case where a geometrical equality is unjustifiable. XLIX B is adequately punctuated and inflected, the width of

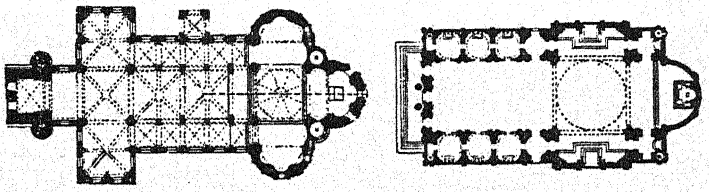


FIG. XLIX

the dome being expressed on all fronts. In Fig. L A the wings have symmetrical façades, and even if a very powerful dominant were present (which is not the case) these features would require conjugation. In B the symmetry of the right and left chambers is compromised by the entrances to the colonnades and

the requisite conjugation has been achieved. In C the plan of a mansion has assumed the form of a regular pentagon. Being in the depth of the country this form has greater justification than have examples XLVI A and B, which could take little account of the surrounding lay-out, but even here the expressiveness of the plan is partly sacrificed to a geometrical

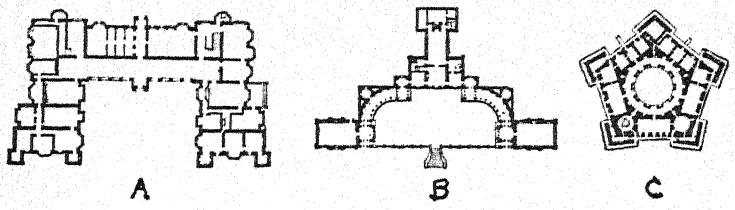


FIG. L

whim, and the entrance is arbitrarily placed on one of the five equal sides, which has not been inflected to receive it. Such a building attempts a detachment from its surroundings, which is in practice impossible. It would emulate the regularity of form which distinguishes the earth itself, forgetting that the earth, being so happily suspended in space, is justified in its roundness.

Chapter V

PROPORTION AND SCALE

THE words ' proportion ' and ' scale ' are perhaps used with greater frequency than any other in architectural criticism, and, one might add, with greater inexactitude. When people say that a building is ' badly proportioned ', or is ' out of scale ' with another building, what do they mean ? If one questions the authors of such phrases, one generally finds that they have but the vaguest idea of what constitutes good or bad ' proportion ' and right or wrong ' scale ' ; on the other hand, if they claim to have definite views upon such matters, their certitude is almost sure to be derived from an adherence to a set of rules.

A rule to be efficacious must take to itself the form of *authority*—it must command obedience. But even then it is only likely to be maintained for long if it is the expression of a principle. Let us consider an institution such as the army or navy, which more than any other is dominated by rules. Many of these have as their object the health and comfort of the troops, while others constitute a series of exercises directed to the purposes of war. The rules, however, are constantly *inflected* to take account of different circumstances. Summer and winter, high and low latitudes modify the routine, while for war itself a number of possible tactical situations have been codified, and the appropriate deployments following upon them are already determined. But these inflections of the rules,

numerous as they may be, cannot cover all the circumstances likely to arise in war, and a great commander will find it necessary to inflect his tactics again and again at the spur of the moment, and perhaps in ways previously unknown. But the principle of inflection itself, which enabled him to transcend the rules, is not itself a rule. Its sovereignty is not merely a political one, to which we owe allegiance in our actions, but a sovereignty of the mind.

Let us examine the limitations of a ' rule ' of proportion in architecture. Sometimes the rule may be made not by professing artists, but by administrators on whom is imposed a public duty to interest themselves in the forms of building. On other occasions the ' rule ' is merely the dogma of an individual, and has no legal sanction whatsoever. If it be decreed by a by-law that in every new suburb the houses aligning on a road must be 60 feet distance from those on the opposite side, that is not a principle, but a rule. Again, if an architect gives it as his opinion that the ideally proportioned window is one in which the relation of height to width is that of the diameter of a square to its side, he is seeking to affirm not a principle but a rule. The first statement has the force of law, but the second, although it has the dogmatic character which distinguishes a ' rule ' of architecture, is binding on nobody. Of the two, the by-law expresses greater intelligence, for it can at least be referred to a general consideration of utility, namely, that it is advisable on hygienic grounds to avoid making streets too narrow. But the latter is quite arbitrary, and gives to the square root of two an æsthetic importance which would surely surprise that simple mathematical function could it be made aware of the flattery which was being paid to it.

Fig. LI A shows part of the effect of a uniform width of street on the general lay-out of a town. The width of the street is here taken to be the distance between

the buildings on either side of it, for these latter are what really give to the thoroughfare not only its solid boundaries, but its character. Differences in the width of the traffic highway would not be able to mitigate the monotony of the architectural formation which results from a by-law fixing a uniform distance between the opposite buildings. Here one street is being met by two transverse streets at right angles with it. That all three streets should be of equal width is a violation of the principle of inflection, for it is scarcely conceivable that they should be of exactly equal social impor-

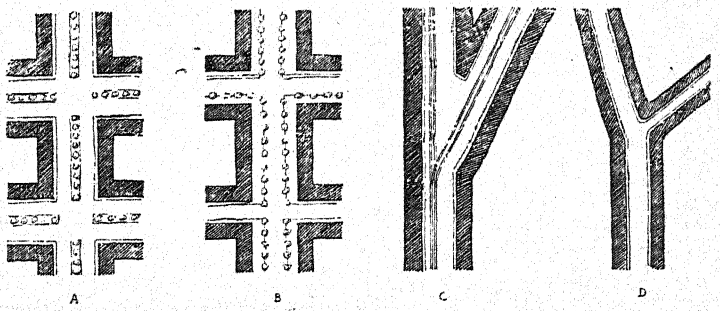


FIG. LI

tance, this being the only possible subjectival justification of their formal equality. It will be observed that while the buildings ignore the principle of inflection, the trees ignore the principle of number, and succeed in cutting the street in two, thus completely destroying such unity as it possessed. In Fig. LI B the main street is given greater width than the transverse streets, while these latter, as is more natural, differ in width from each other. The trees also contribute further inflections; the broader street has two rows (which, moreover, divide the street into three divisions, thus avoiding an unresolved duality), the narrower street has only one row, placed to one side, while the

narrowest street has no trees at all. Fig. LI C shows the junction of two such equal streets. Here still more crudities are in evidence. One might have expected that the main street (for one cannot avoid giving the one which continues its rectilinear course past the junction a priority over the street which is subject to a bend) would be inflected in some way in order to take cognizance of the fact that another thoroughfare, of width and importance equal to itself, was at that point entering it. This figure also illustrates how a line of tramway, just as a line of trees, can cut a street in two. On the right the trams are seen to produce an unresolved duality. But along the main street the trams are kept on one side with a more pleasing result. The configuration LI D is an organic one, inasmuch as the main street is *inflected* in two ways at the point where the narrowest street joins it. In the first place it bends slightly, while secondly it is reduced in width. It thus resembles the trunk of a tree, which is invariably inflected in the same manner where a branch comes into it. The bigger the branch in comparison with the main trunk the more does the latter bend in order to acknowledge the incursion. LI D has a further merit, in that the volumes of traffic of the two streets forming the fork join together in a street which has been appropriately widened to receive them, while in LI C the equality in width of the three thoroughfares is most unreasonable. Almost as bad as a ' rule ' to make all suburban streets of the same width (and in this connection it must be borne in mind that if the width be specified only as a *minimum* it tends to become the standard) is a rule which would fix the proportion of width of street to the height of the buildings on either side of it. Diagrams LII A, B, and C represent sections and short perspective views of three streets of different sizes, but of equal proportion. Even if this proportion be good, it is obvious that an unbearable

monotony would result if the relation of width of street to height of buildings were to be made constant.

LII E and F represent alternative types of street, each of which is agreeable to the eye. D, however, of square section suffers from the great defect that the parts have not been inflected to take account of their different functions. There is an obvious lack of sensibility if the height of the building has an identical dimension as the width of the street.

The question of the proper framing of by-laws for

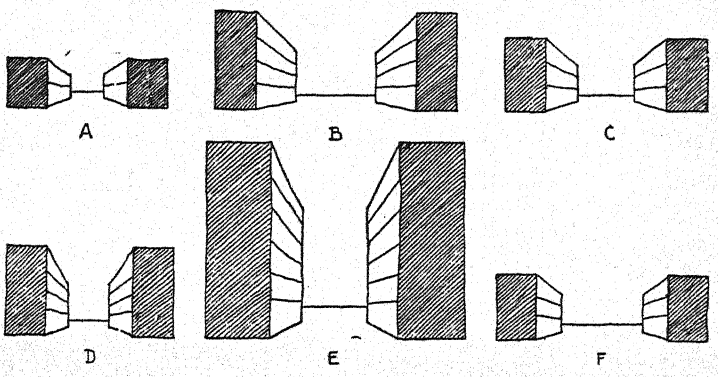


FIG. LII

the regulation of street architecture is too large a one to be discussed at length here, but sufficient has perhaps been said to indicate the danger of applying too simple 'rules' to such a subject. A very elaborate code would be necessary if the requirements of hygiene and traffic are to be satisfied without depriving civic architecture of its artistic qualities.

Figs. LIII all have a bearing upon the subject of proportion in architecture. A, a square room, obviously lacks the necessary inflection, because, although its sides are equal and similarly disposed to the cubical content of the room, two sides have windows

and two are without. If the height were also equal to the length of a side, the design would be worse still, because a perfect cube can be turned upside down without this figure showing consciousness of the operation. The walls could not be sufficiently differentiated from floor and ceiling. In B the windows on the west

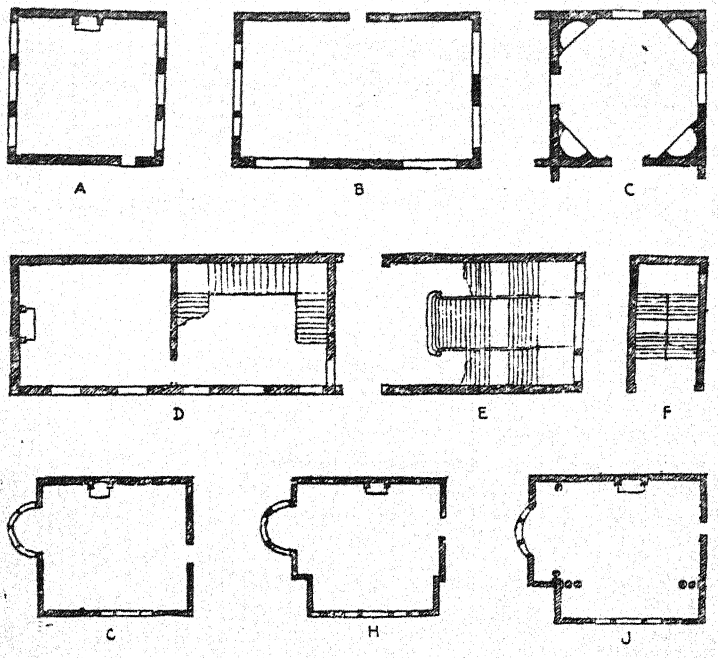


FIG. LIII

side have no obvious fault on plan, the door on the north side cuts the wall in two, the windows on the east side form an unresolved duality, but not on the south side, because the interval between the windows is large enough to dominate them. In C the square form becomes excusable, because this is not a living-room, but the turning-point of a passage, and may

have the merit of punctuating a series of rectangular chambers. D is faulty because of two equal and symmetrical rooms, one is a living-room and the other a hall with staircase. The presence of the latter is sufficiently important to have justified an inflection in the shape of the hall, such as would have differentiated it from the living-room. F is a satisfactory arrangement of a staircase in triple formation. The foot of the stairs is punctuated on plan. F shows a common and economical type of stairs which, however, is too much of a duality to be fit for ceremonial purposes. And, unlike E, it has the defect in that the first half-landing cuts the series of steps in two. G, in which the doors and windows ignore each other, lacks the most elementary inflections. It is noteworthy that while the principle of inflection dictates an avoidance of equalities where equalities are meaningless, it is nearly always violated if features easily capable of being opposite each other are placed awry. H and J show irregular-shaped rooms, in which, however, window, door, and fireplace have each their *vis-à-vis*.

Figs. LIV A, B, D, and F show the absurdity of trying to give architecture a ' geometrical ' basis. A has a series of square windows, equally uninflected ; B has double square windows, which are nearly as bad as the square, for as soon as we realize that they are double-square we become conscious of an unresolved duality. B has two further defects : the breadth of the windows is equal to the horizontal distance between them, while the height of the windows is equal to the vertical distance between them. D shows three windows of different size, but similar, the proportion of height to width being that of the diameter of a square to its side. But what is the use ? This little ' rule ' of proportion does nothing but control the shape of one window at a time. It altogether fails to regulate the relation of windows to neighbouring

windows and to the façade of which they form a part. In C the proportion of the individual windows may be quite satisfactory. But nevertheless this façade has a great blemish. Supposing it were established that the relation between solid and void and the various dimensions of the building could be expressed in terms of square roots of two or three, or five, or that parts of it were enclosed in triangles, circles, ellipses, or any other figure, could such 'mathematical' jargon influence our judgment in the least? Of course not,

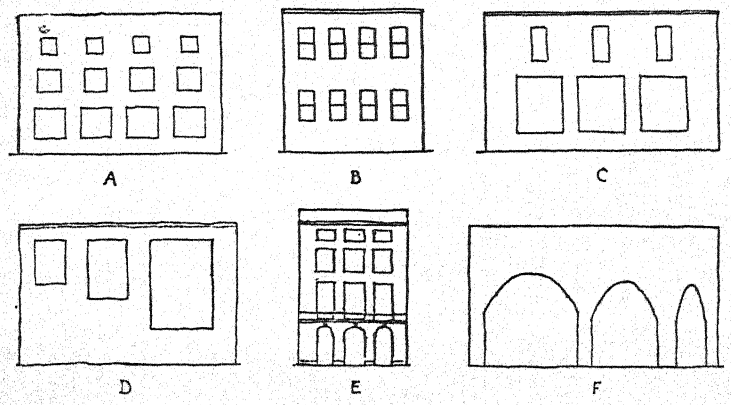


FIG. LIV

because there would remain the fact that while the lower windows have unity by virtue of their trinity, the upper windows are so narrow that they fail to dominate over the intervals between them, and we have an unresolved duality. In E the façade is free from gross errors of composition, but even this would be ruined if it were duplicated without a dominant. In F sections of three parabolas of different sizes are seen to top three doors. But the parabolas as here employed are both meaningless and discordant. A parabola is nothing but an ellipse stretched out

to infinity, and to take a section of it and cut it off arbitrarily to form the head of a window is to create a figure whose parts lack both punctuation and inflection.

The 'geometrical' and 'mathematical' solutions of the problem of proportion in architecture were apt to be extremely unsatisfactory. The reason for this is not far to seek. The attempts to express architectural proportion in terms of numerical relations fail because the numbers and ratios quoted are generally far too simple, and have no æsthetic reference. If, indeed, mathematics have a bearing upon art at all, it would be but reasonable to suppose that great art can only be created or understood by those conversant with the higher mathematics, and certainly not by the ingenious investigators who profess to have discovered that the proportions of a Greek temple are a function of the square root of five. It is sufficient to say either that the Greek temple was not designed in that particular manner, or if it was it ought not to have been. Such investigators mention no æsthetic principle which would justify us in finding a particular virtue in the square root of five, or any other root, and inasmuch as they would have the prestige of being mathematicians while using figures in an unmathematical manner, they can scarcely escape the implication that they are, in fact, charlatans. Unfortunately these 'rules' of proportion are sometimes described as the application of mathematics to art, or, worse still, the application of 'intellect' to art. But intellect can be applied to art in a different and more legitimate manner, by the formulation of principles which enable us to isolate the æsthetic factor whether in geometrical forms or in anything else.

Proportion in architecture results from compliance with the principles of Number, Punctuation, and Inflection, and as far as the formal attribute of buildings is concerned, every fault in proportion can be

set down to a violation of one or other of these principles. There is one aspect of proportion, however, which belongs to the *subject* of architecture. Fig. LV will make this clear. Here, it is true, the fenestration violates all the formal canons. Every window is obtrusively an unresolved duality, the series of windows has no punctuation, and there is no inflection. But, in addition to this, the façade has an inhuman quality. This is because all the windows are oblong in a horizontal direction. Such a disposition is wrong, because it suggests that the building is inhabited

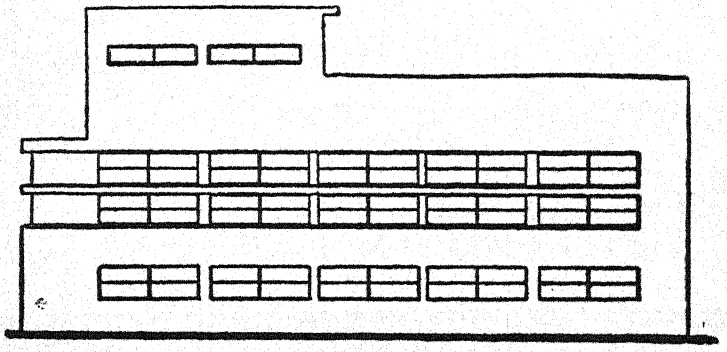


FIG. LV

by creatures much broader than they are tall. If built in an aquarium on a small scale such a structure might quite appropriately be a retreat for flat fish. In a façade the majority of the windows and doors, or else of their subdivisions, should be taller than they are broad, for this is one of the chief means whereby architecture reflects the perpendicularity of the human posture, and in so doing is itself imbued with a human quality. The window openings and panes in Fig. LV might be rearranged so that their pattern conformed with the principles of Number, Punctuation, and Inflection, but if all the windows

and panes were oblong in a horizontal direction the façade would still give offence, because it had this subjectival fault of ignoring its human reference. A building with all its openings similar to LVI C would also seem wrong, because it would suggest the home of some elongated animal, of human form perhaps, but strangely distorted. This consideration only applies to windows, because these are the chief symbols of the human usage of a building. Rectangular forms long and low, or narrow and high, if there are

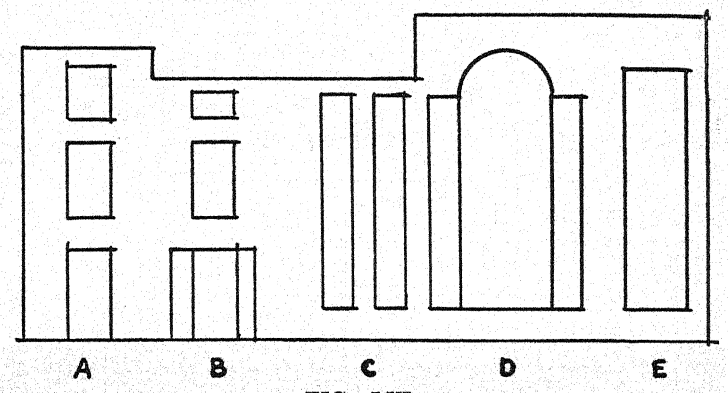


FIG. LVI

wall surfaces, are of course quite natural, and even in windows themselves they may be tolerated if clearly subordinate to a more normal type, as in LVI B and D.

It is apparent that, with the exception of this one matter of the upright window, proportion in architecture is within the province of the grammar of design. For instance, if one were to criticize the proportions of the window in the design shown in Fig. LVII, we should obviously ask whether the two-light window, with the unusually broad central mullion, constituted an unresolved duality? Or does the

small oriole above suffice to unify the composition ?

While proportion is determined by reference to all three grammatic principles, scale is a matter of inflec-

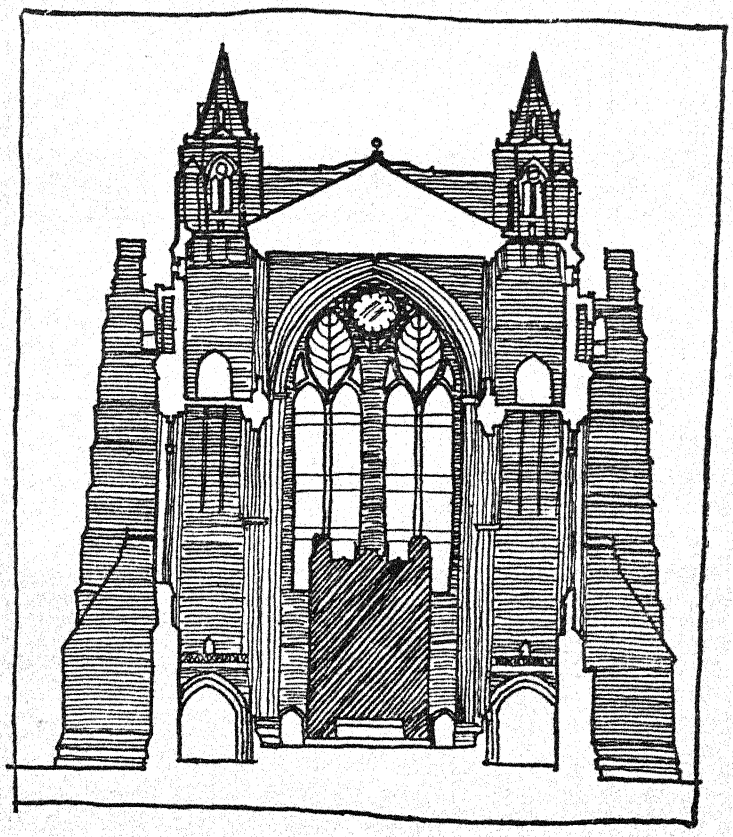


FIG. LVII

tion alone. It is important to realize, however, that when we achieve scale in a design we have only partly satisfied the requirements of inflection. It may be remembered that Inflection was defined as a principle which secured the organic unity of an assem-

blage of objects by endowing them with a degree of sensibility manifested simultaneously in two ways: in the first place the objects must have a certain similarity, for otherwise we should be unable to recognize them as members of the same group; secondly, they must be suitably differentiated, for otherwise the parts would fail to express their natural differences in status, function, and position. Thus inflection can only be achieved by similarity associated with difference. But scale is similarity alone. It may be defined as *the element of similarity in dimension, which distinguishes the parts of a building when these latter have been subject to the processes of inflection.* A complete subservience to scale would paralyse design, because the artist would never dare to depart from a dimension originally chosen, and his work would tend to resemble a chessboard of squares. An architect, for instance, suffering from such an intellectual limitation, would want to divide up all the parts of his building in terms of a single unit; the broad expanse of roof would have to be broken up so as to accord with the scale of the fenestration, and every other significant contrast of size would, as far as possible, be obliterated. Fig. LV shows signs of this kind of paralysis. The designer chose a certain size of window opening with a certain size of pane, and it grips him as in a vice. He cannot get away from it. This building has scale, in fact too much of it, but it is an abortion, because the contrast which should supplement scale is absent. Let us compare this crude design with LVI B, representing in diagrammatic form a charming group of windows taken from a Regency building. Here the forms of the openings have considerable variety, and yet they have sufficient scale to bind them together. The top window, though differing from it in height, has the same width as the middle window; while this latter, though narrower than the window beneath

it, yet accords with its central division. The group LVI A is also satisfactory, and it has the further merit of cohering with B, the taller top window being the necessary inflection, justified by the increased height of the façade. It will further be observed that D, though differing from C, is yet in scale with it, whereas E, which has no dimension at all in common with D, is out of scale.

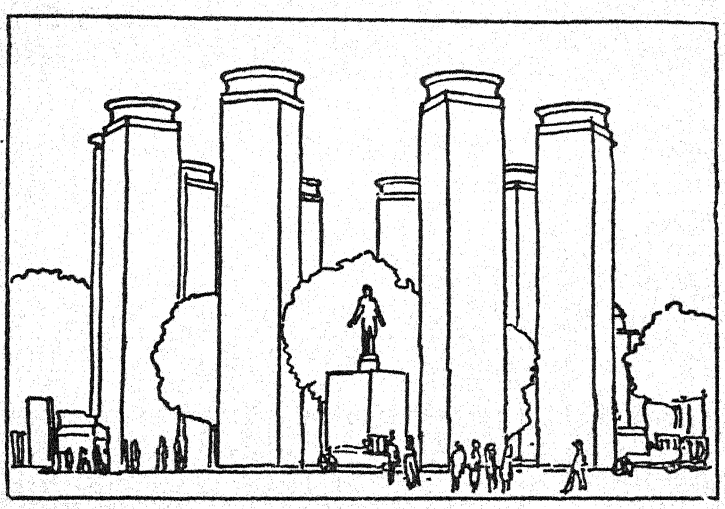


FIG. LVIII

It was found that there was in proportion one element not governed by the grammar, but belonging to the subject alone. Scale has a similar element, which comes into evidence as soon as we begin to contrast a part of a building not with another part, but with the human figure. It is commonly recognized that buildings should take account of the scale of the human figure, and should, if possible, express this dimension by its own subdivisions. If we cannot ascertain the scale of a building except by setting

a human being beside it, then the design is not a complete success. Fig. LVIII shows a group of pylons. The statue set in front is perhaps intended to give the pylons scale, but as it itself is above life-size and set on a pedestal with no determining features at all, it fails in this object, and in the last resort, in order to realize the scale of the architecture, we are compelled to refer it to the people and vehicles in the foreground. This question of the human unit

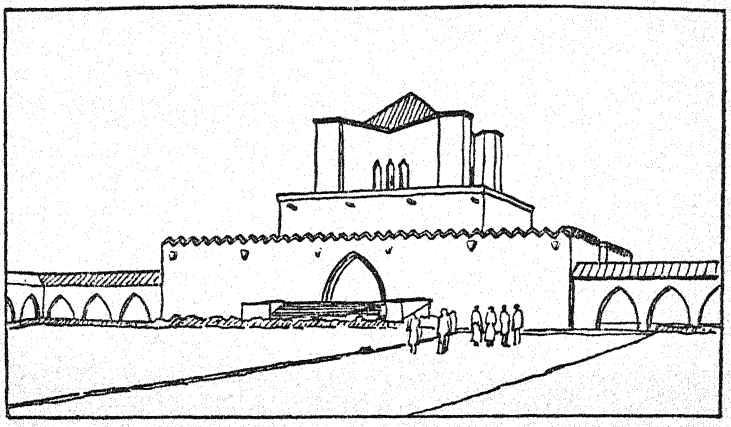


FIG. LIX

in architecture I have discussed elsewhere, and instead of repeating the arguments at length in the present context, I may perhaps be permitted to refer the reader to a volume entitled *Good and Bad Manners in Architecture*, pages 38–52.

We may here continue the consideration of the scale which unites the various features in an architectural composition. It has often been observed that the duplication in the same design of features of similar proportion, but of different sizes, is inadmissible. It is as if Nature, instead of making a baby of different

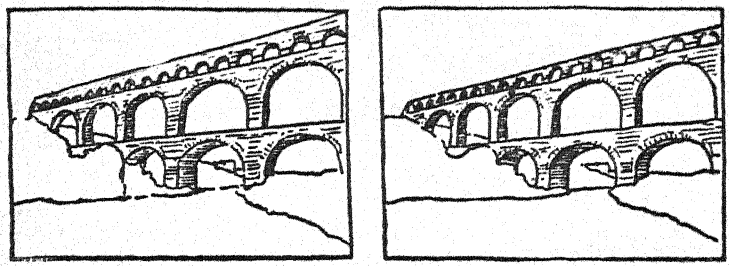


FIG. LX

proportions from those of an adult, had made him an exact replica of an adult, yet cast in a smaller

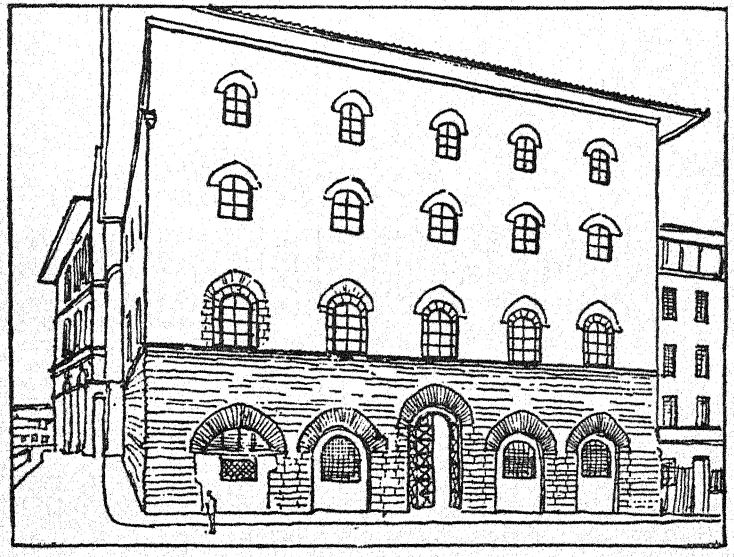


FIG. LXI

mould. Such a miniature man would be *out of scale* with his prototype. In Fig. LIX we see pointed arches thus ' out of scale ', the openings of the arcades

being smaller than, yet similar to, the central doorway. In LXB the third storey consists of 'baby' arches of proportion comparable to that of the arches below, and the result is most unsatisfactory. Actually the famous aqueduct is as in Fig. LXA, where it will be seen that, though the arches in the upper tier are indeed much smaller than those below, they have to a certain extent been brought into scale with

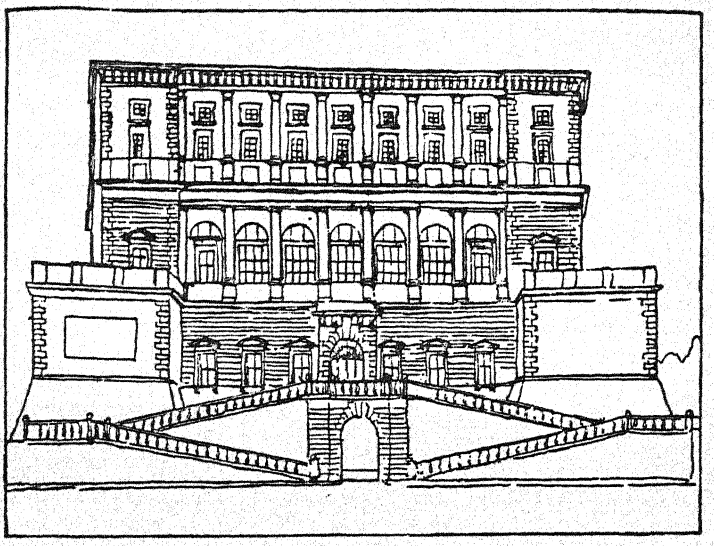


FIG. LXII

the latter by having their superincumbent wallage of depth equal to that which crowns the arches on the first and second tier. In Fig. LXI there are elements of scale, for the three rows of windows above the basement have voussoirs of equal depth, while the windows in the middle row are a reproduction of the central subdivision of the windows beneath. It is here obvious, however, that the building is out of scale with the house adjacent to it. In Fig. LXII the

Classic Order is employed to unite the two rows of small windows in the upper part of the façade, so that together they may be comparable to the row of arched openings beneath, and thus it gives the building scale.

Chapter VI

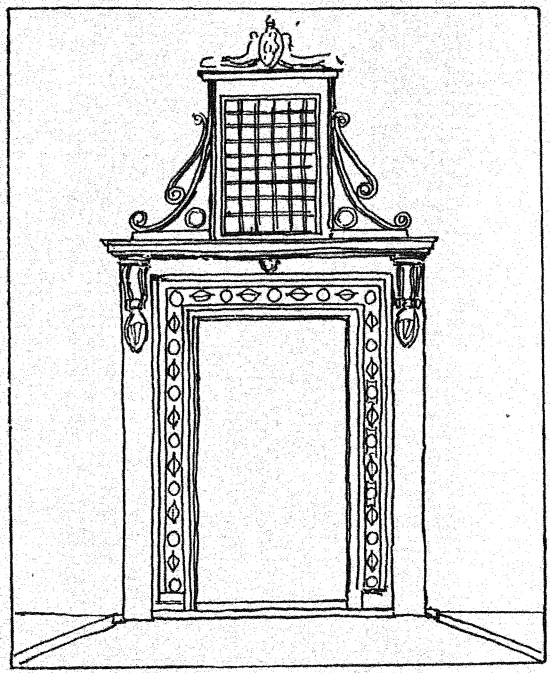
ORNAMENT AND MOULDINGS

WHAT is the function of ornament in architecture? And what is ornament? Let us take the latter question first. Now the easiest way to obtain an idea of the nature of ornament is to take any building which we recognize to be much ornamented, and then in imagination to strip off feature after feature until we obtain a building such as anybody without the slightest fear of contradiction would declare to be entirely without ornament. Where should we start in our crusade of destruction? First, of course, we should obliterate every sculptural or pictorial decoration, that is to say, every feature whether in stone or any other material that is a representation exact or not of any animal, vegetable, or other object of our three-dimensional space. Then we should ruthlessly banish every moulding, every fillet, every rustication, every conscious elaboration of any of the materials used in the building, provided that this elaboration was introduced for formal effect alone. We may note that the elaboration only comes under the category of ornament if it enhances the degree of complication of the form in question. For instance, any effort expended on making smooth or reducing to a plain surface a material which in its natural state is neither smooth nor plain, does not result in ornament.

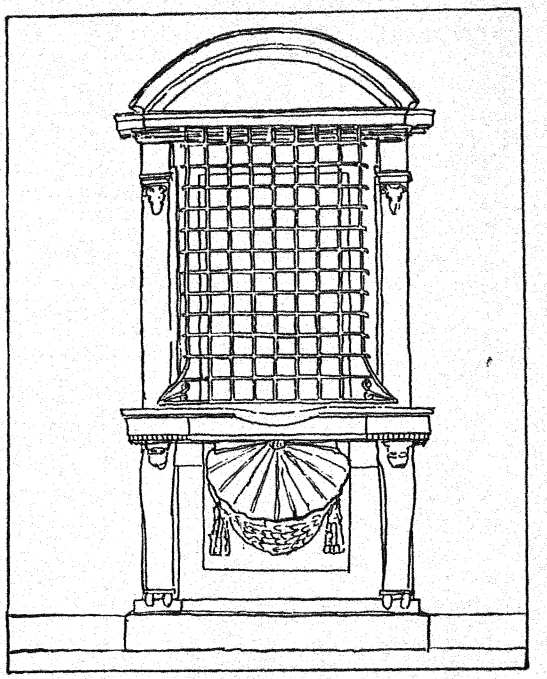
When the ornament has been abstracted from the

design, there remains a shell which some people would quite wrongly describe as pure structure. An elementary acquaintance, however, with the grammar of design would suffice to prevent anybody being guilty of such a judgment. Of course, one of the elements in the residuum will certainly be structure, but if that same structure has been moulded in accordance with the principles of Number, Punctuation, and Inflection, it will have a formal quality by virtue of which it is already architecture. Yet it will be architecture of a rather poor quality. It may be a quite useful exercise to try to design buildings entirely without ornament, for such buildings have at least the quality of being as far as possible relieved of association with the historic styles of architecture. But it will also be found to what great extent architectural composition depends for its subtlety upon ornament. It is a very common practice among architectural critics to talk of 'meretricious ornament' as if the word 'meretricious' were an Homeric epithet, there being more than a hint in the context of their remarks that they consider all ornament to be more or less meretricious. They fail to realize how intimately ornament may enter into the fabric of design.

The grammar of design has a dual application to ornament. We may describe this as an 'external' and an 'internal' application. By means of the former, ornament increases the capacity of the main features, that is to say the non-ornamental features of a building, to comply with the principles of Number, Punctuation, and Inflection. In this case the quality of the ornament itself is less important than its *position*. Let us take Number first. It is obvious how in a façade an ornamental feature may resolve a duality, or introduce a duality where previously there was none. In Fig. LXIII B the decorated brackets which support the cill are satisfactory, in so far as they may



A



B

FIG. LXIII

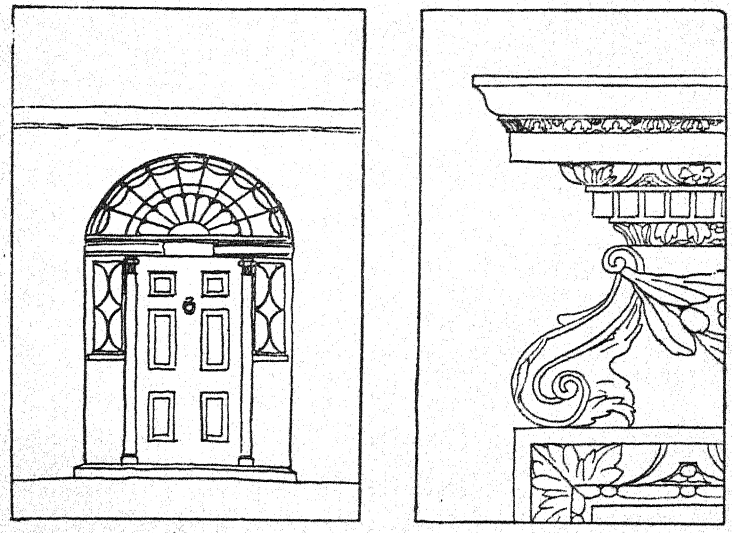
be regarded as the lateral boundaries of a rectangle; but if this intermediate space were without its filling of ornament, they would stand out obtrusively, and would lack a focal centre of interest to bind them together. Here the three elements of the composition have a similarity both in material and in style, but it sometimes occurs that people expect a piece of ornament to do more than is possible, to resolve the duality, for instance, of two windows, which are but dark rectangles in the wall and are not immediately comparable with a carved decoration in stone. It is easy for an architect to deceive himself in this respect by adopting a method of draughtsmanship which gives equal value to things which are not equal. To avoid such confusion, in sketch designs of a façade, the windows should always be represented by a dark tone, which differentiates them from patterns in an opaque material. When we are dealing with wall surface, we cannot fail to come across numerous instances where ornaments, such as a decorated string-course, would destroy the unity of a façade, and where sculptured panels or shields would do the same by introducing a central vertical division. But it is chiefly by its capacity to act as *punctuation* that ornament is useful, and indeed necessary, to the designer. Cornices, architraves, and nearly every kind of elaboration which is employed to emphasize the boundaries of architectural features, come under the category of ornament, and to abstain from their use altogether would be an act of asceticism which would greatly restrict the range and significance of architecture. The reader will easily pick out in the illustrations in this and previous chapters those examples of ornament which punctuate various parts of the designs, and can himself imagine to what extent these would be injured if such decoration were removed.

Ornament is also an aid to the proper *inflection* of

the parts of a building. In Fig. LXIII A the window is of smaller width than the doorway beneath, and would have failed to show a sufficiently intimate relation with it if there had not been added the scrolls on either side of it, which link the window to the extremities of the hood. It may be contended that these particular scrolls are not well designed, but the example is a valuable one for this very reason, that it shows how on occasion even indifferent ornament is better than no ornament. Of course, it is the commonest thing in the world to see very good ornament in places where it injures the design because it is improperly related to it. Yet it is far better to cut out the good ornament which is wrongly placed than to cut out the bad ornament which is rightly placed, because the latter is not a luxury but a necessity. So the people who tell us that if we cannot have good ornament we ought to dispense with ornament altogether fail to recognize the function of decoration, which is to increase the degree of cohesion between the parts of a design. In Fig. LXIV A we see that the pattern of the fanlight is the means of inflecting this feature to take account of the doorway beneath, the two intermediate semicircles taking up the lines of the columns on either side of the opening. In LXIV B the scroll unites the cornice to the architrave below, and is an element of inflection, for now the frieze or intermediate space between these two features is able to take cognizance of both. Here is another case of the necessity of ornament, for we may say in this instance: 'Better a bad scroll than no scroll.'

The 'internal' application of the grammar of design to ornament consists in making the parts of an ornament conform to the principles of Number, Punctuation, and Inflection. Fig. LXV shows some geometrical designs for cast-iron work. A is obviously an unresolved duality. In B the wave-ornament

punctuates the design—the scrolls beneath are inflected towards their bases, but the lateral members of the pattern have the fault of being symmetrical about a central horizontal axis, as have also the designs D and F. Examples C and E are properly inflected, but lack lateral punctuation, which, however, is present in F. Fig. LXVI is another unresolved duality. It



A B

FIG. LXIV

is noticeable that here the apices of the leaf ornaments impinge most harshly upon the cross, while the ornaments on either side of its upper member have no relation to it, except that of juxtaposition. Yet the crosses are themselves punctuated, as are also the elementary pilaster forms, which have foliated capitals and bases curiously inflected to join themselves to the adjacent anthemions. This is an interesting design, which combines elements of crudity with

elements of charm. The superb fragment, sketched in the design LXVII A shows an acanthus leaf beauti-

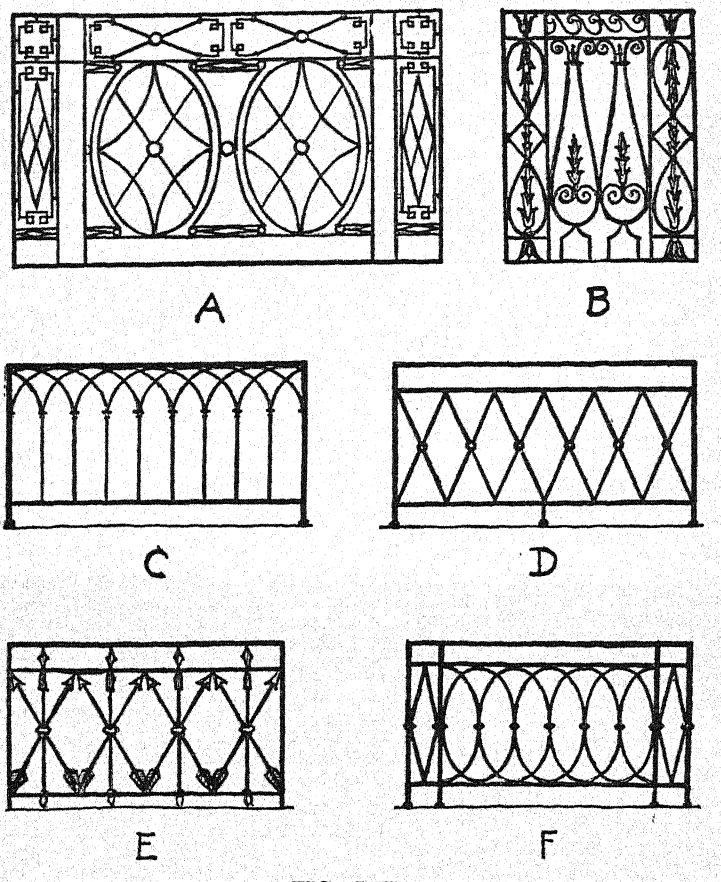


FIG. LXV

fully conventionalized. A great merit of the design is that the simple leaf ornaments in the background serve as a transition between the acanthus and the figure decoration, while at the same time their apices

punctuate the plain surface immediately beneath the sculptural part. In LXVII B a lion's head appears as a piece of ornament which is itself punctuated and inflected, and free from the defect of unresolved duality, because the natural shape itself, being originally imbued with life and therefore organic, also has those formal virtues. Thus an ornament, if it be derived from animal or vegetable shapes, has always the chance

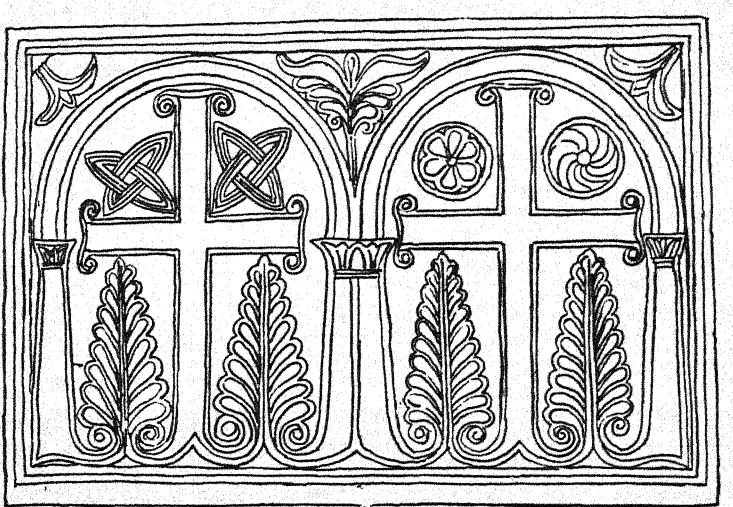
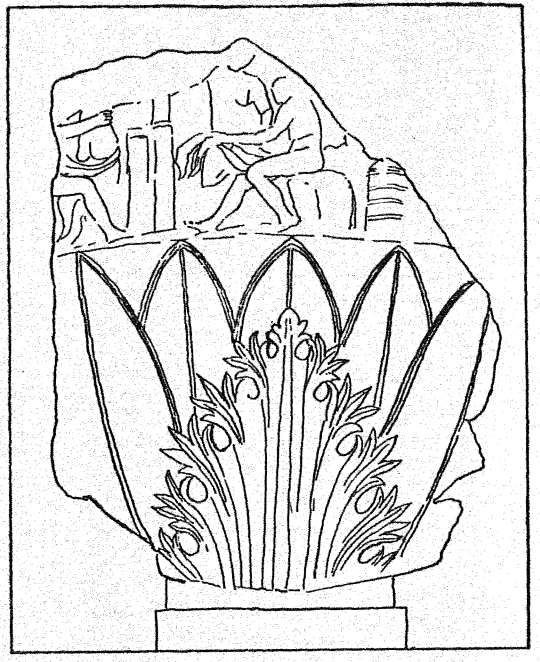


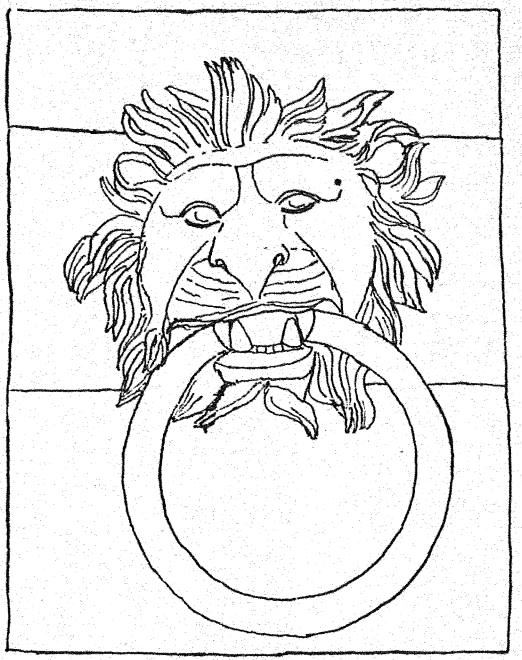
FIG. LXVI

of being artistically good, and when it fails, this is because in its general arrangement it violates that grammar of design which is expressed in animate Nature.

While an ornament based upon some natural form of plant or animal borrows from the latter a measure of organic unity, it must add thereto a characteristic of its own, a quality which indicates that it takes cognizance of the position allotted to it in its architectural setting. For that reason a leaf reproduced



A



B

FIG. LXVII

without being conventionalized at all, as on the capital depicted in Fig. LXVIII A, though truly organic *in itself*, does not contribute to an organic ornament. These ivy leaves are natural in their wild state, but they are not natural on a capital. Even here, however, they have indeed submitted themselves to the restraint of being grouped round the bell of the capital, but this is not sufficient, because the forms of the leaves themselves are not *inflected* to show that they have left the environment in which they originated,

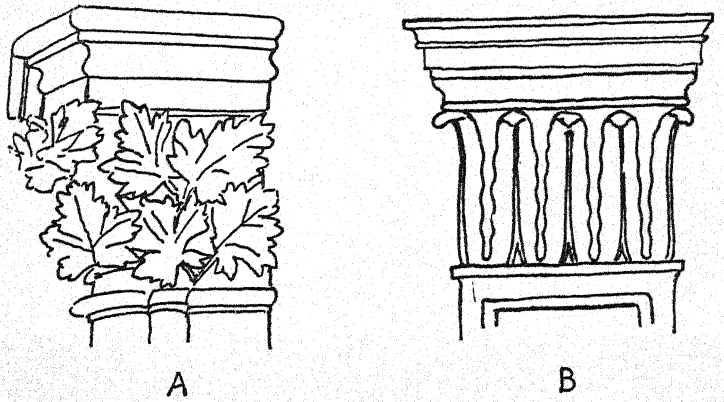


FIG. LXVIII

and are now subordinate to a composition having laws of its own. In LXVIII B, this desirable inflection has taken place, with the result that the leaves, while submitting themselves to a disciplinary code, have yet attained a new vitality. They do not grow from the soil like that, but from the head of a pilaster they come out quite charmingly, as to the manner born. The reason of this is that their verticality accords with numerous other vertical lines in the architectural composition, while as a group they are conscious of their place and punctuated on all sides.

Laterally the group is closed by the turn of the outside leaves, which incidentally give character to the silhouette by providing a prominent inflection to the drum of the capital. At its upper boundary it is marked by the row of curls at the apices of the leaves, while at the bottom it is doubly accentuated by the rounded off ends of the decorative spaces between the leaves and the spreading central veins. The downward inflection of each leaf is borrowed direct from Nature, but the important thing to notice is that the leaves are so arranged that their own inflection inflects the capital as well. But in example A the leaves, while possessed of their own organic unity, churlishly keep it to themselves, and forbear to lend even a suggestion of this precious attribute to the architectural form with which they are associated. Here the group is not punctuated on top, bottom, or at the sides ; it is without inflection ; and apparently not content with that the artist has quite gratuitously given us an unresolved duality as well, for he has arranged his leaves in two equal rows. It is noteworthy that in this instance the mouldings of the capital itself, which punctuate it top and bottom, and contain within themselves several significant inflections, have more vitality than the petrified ivy. The latter, through being ' natural ', is, in this place, unnatural. I have criticized these two examples at length because they show very clearly the application of the grammar of design to the type of ornament which is derived from the forms of animate Nature. The grammar is implicit in Nature, but is not the unintelligent slave of Nature, for it includes within its scope such creations of men as can be described as works of art. In so far as these, after their own kind, attain to an organic quality, they are also natural.

In the foregoing argument the respective styles of the two capitals were not contrasted. It would be

possible to find Greek and Roman capitals which exhibit a false 'naturalism'. While in many Gothic capitals, such as the early English type, for instance, the foliage is exquisitely conventionalized. Mediæval building abounds in examples of good ornament derived from the forms of animate Nature. But it is perhaps true to say that the ivy and the oak do not provide such a truly architectural inspiration as do the acanthus, the lotus, and the palm.

Fig. LXIX shows how the notion of the capital was originally derived from the flower. In the Egyptian temples, for purposes of worship, there stood architectural imitations of upright plants which needed to be just strong enough to support a sham sky with a pictorial representation of stars. The abacus was at first made as inconspicuous as possible, and was, in fact, almost invisible from below. If we ask 'Who taught the Egyptians how to punctuate their columns?' the answer is that the plants gave them this useful instruction in the elements of design. In example B the burden of the ceiling is light, and can be carried on the topmost petals of an open flower cast in an architectural mould. Later, when the burden became heavier, the petals tended to close and assume a form of greater structural competence, while the abacus becomes more prominent as in LXIX A. Example C is a charming extravagance, a design representing a column having a purely decorative significance, while in D the column is doubly punctuated by a flower and the heads of sheep as well, the artist having gone to both animal and vegetable kingdoms for his inspiration. The design is whimsical enough, but it has beauty. Figs. LXX A and B depict further developments of the capital, which still, however, reveal clearly its origin in the example of plant forms. In A it is noteworthy that the small leaves at the foot of the trunk (shown more realistically in B) have become

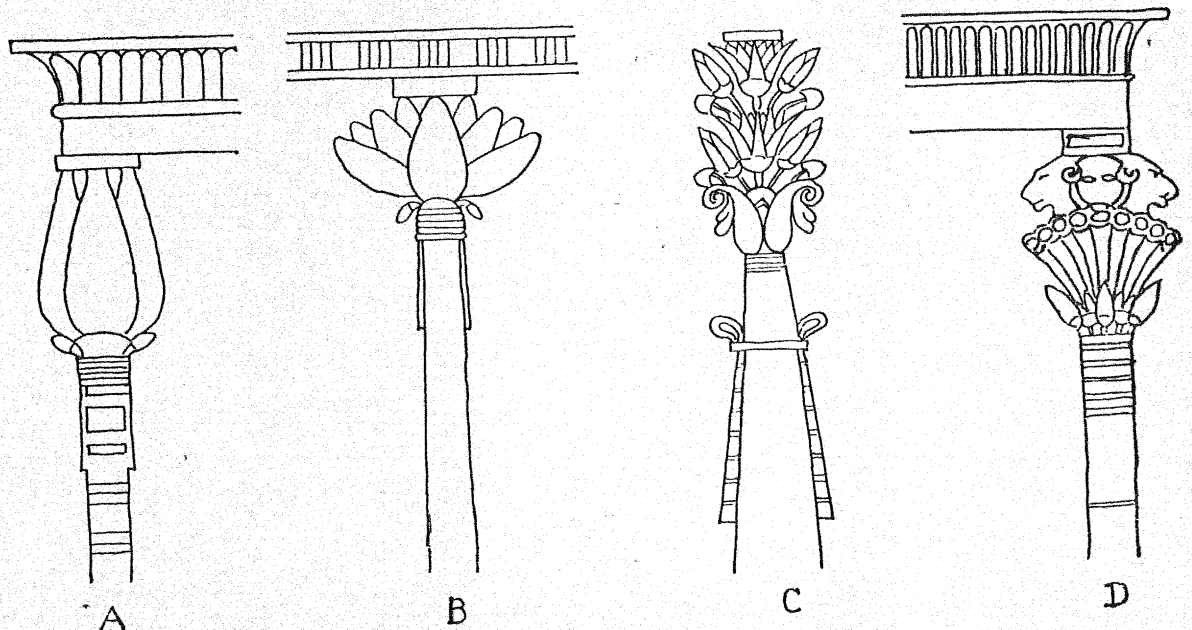


FIG. LXIX

conventionalized to make a rectilinear geometrical pattern which punctuates the base of the column. In all these Egyptian examples the plant-forms are made conscious of their architectural purpose, and become symmetrical and upright, as in A, B and C, or group themselves in formal arrangements as in D and E. In C there is an element of crudity because the three types of flower at different levels are insufficiently united.

We are often told that capitals and cornices have a utilitarian origin, and that this kind of ornament grew from structure. It is true, of course, that the top of a column may need some preparation for the placing of its load, either a spreading-out or else a tightening of its fibres, while in the case of a cornice the 'dripstone' moulding has its uses. The idea, however, that in the English climate, or any other climate, a cornice with or without a dripstone is going to protect a wall surface from rain is unworthy of serious consideration. As rain is often accompanied by wind which drives the moisture against the wall in almost a horizontal direction, it is difficult to see how a cornice can keep dry more than two or three feet of vertical expanse of wallage. And few capitals increase the structural efficacy of a column. The capital is logically justified by the æsthetic principle of punctuation, and there is not the least need to appeal to history to find authoritative support for its use. Whether in the past it was ever structurally convenient to expand or contract an upright post at its upper or lower extremities is utterly irrelevant to architectural design, and if to-day it is structurally convenient to have columns of concrete or other material of even section and without an articulated capital or base, that fact is also irrelevant. There are numerous occasions when the punctuation of an upright member in a design is an æsthetic requirement, and if this

punctuation is not born of structural need, we must supplement the plain structural form by elaborating its extremities. In many cases it will be found that this elaboration will take the form of *ornament*.

Figs. LXIX and LXX show that there at least the punctuation of the column was not determined by the nature of its load, but was directly inspired by the example of animate Nature. And it was but natural that the spreading form of the capital should be echoed in the spreading form of the cornice which punctuates a whole façade and in fact a whole building. That the cornice has traditionally a purely æsthetic purpose is amply proved by the fact that it is just as often employed below the summit of the façade as at the summit itself. The cornice may be surmounted by a parapet or attic storey, or it may be used to mark off and punctuate the lower division of a façade. Little sister to the cornice is the string-course, in association with one or more mouldings, and the cornice is also united by degrees of affinity to the architraves round windows, and to a most numerous family of mouldings and groups of mouldings which serve to punctuate and inflect various parts of a building.

The column itself has a constructional use in so far as it is necessary to support an entablature or an expanse of wall surface. This utilitarian function, however, could be performed without introducing those refinements by which the column, as in the Classic Order, enters into an intimate æsthetic relationship not only with neighbouring columns but with the whole rectangular area which a group of columns and its entablature may comprise. An exposition of the Classic Order would require a book to itself, but it may be affirmed here that the Order, although on occasions it may be put to an obvious constructional use, has a formal significance of its own, and has been

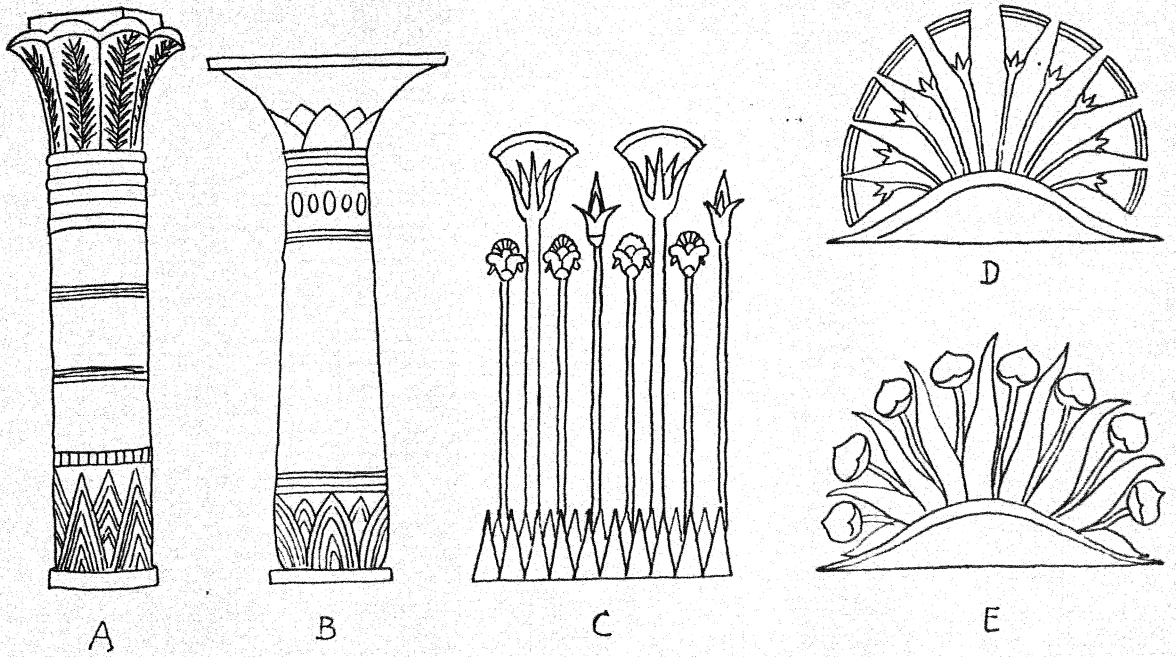


FIG. LXX

found of extraordinary value by innumerable architects who have striven to endow their buildings with an organic quality.

In a previous chapter an example was shown of the manner in which the Order can give the necessary *scale* to a particular part of a façade. When the Order is employed to aid the composition of a wall surface, it is capable of a significant inflection whereby the columns are transformed into pilasters. Certain architectural critics will tell us that in such an instance the Order has ceased to be 'functional', and has become purely decorative, and that it is wrong to use a structural or functional form for a decorative purpose. But these are misleading statements. Their authors use the words 'structural' and 'functional' as if they were synonymous, whereas the idea of 'function' includes that of 'structure' and much else besides. We are entitled to say that the pilaster has an *æsthetic* function, and is of course to that extent 'functional'. Such critics would have us believe that what is not structural is not 'functional', and thus they show themselves to be unaware of the existence of an æsthetic function apart from the structural. The Order has indeed a decorative function in so far as the gracious ornament that may be associated with it is an ornament not only to the Order but to the building as a whole. But the Order itself is more than ornament. It may endow a building with a spiritual content it did not before possess, for it may inflect certain parts, imparting to these a greater emphasis and importance than other parts; it may, by the differentiation between columns standing free, engaged columns and pilasters, express a whole hierarchy of values which may confer the appropriate character not only to the several parts of the same structure but to structures of various types and degrees of social status. The Order, if

intelligently used, is an instrument for the introduction of innumerable inflections in the forms of architecture, and no other instrument of design has yet been found to equal it in this respect. And the peculiar thing is that the buildings which wear the Order give additional significance to those which do not. People who call the Order decoration do not disparage the Order, but rather exalt the meaning of decoration.

There is a sense in which an architectural feature, originally self-sufficient and comprising elements of general composition, may by virtue of its peculiar use and situation constitute an ornament. Where a building is very large, as for instance, a skyscraper, its façade may be surmounted by an attic storey characterized by a row of columns, or perhaps by a row of arches. The Order or the arcade would here be merely a punctuating feature, and even when reduced to its plainest terms would still be decorative, for it would be chosen not for its constructional use, but for the quality whereby it contributes to a pattern.

The same critics who maintain that the Classic Order is abused if put to a decorative purpose generally overlook the far more flagrant example of a constructional feature so employed—namely, the pointed arch invented by our mediæval forefathers. This, originally an engineering device for roofing the junction of two vaults of different widths, was afterwards 'degraded' to be a mere gaud, a motif of ornament, sometimes beautiful, sometimes finicking in its tiny scale, and often meretricious. But this use of the pointed arch for decoration is justified if the proper æsthetic result be obtained; and the fact that the form is capable of resisting certain mechanical stresses is here irrelevant. The design shown in Fig. LXXI A should cause intense pain to anyone who holds the view that constructional forms should work all day long and never play. Here

is the arch, a shape born of the necessities of roofing an area with stone, appropriated, or some would say misappropriated, by a carpenter who has had the audacity to reproduce and even caricature this same

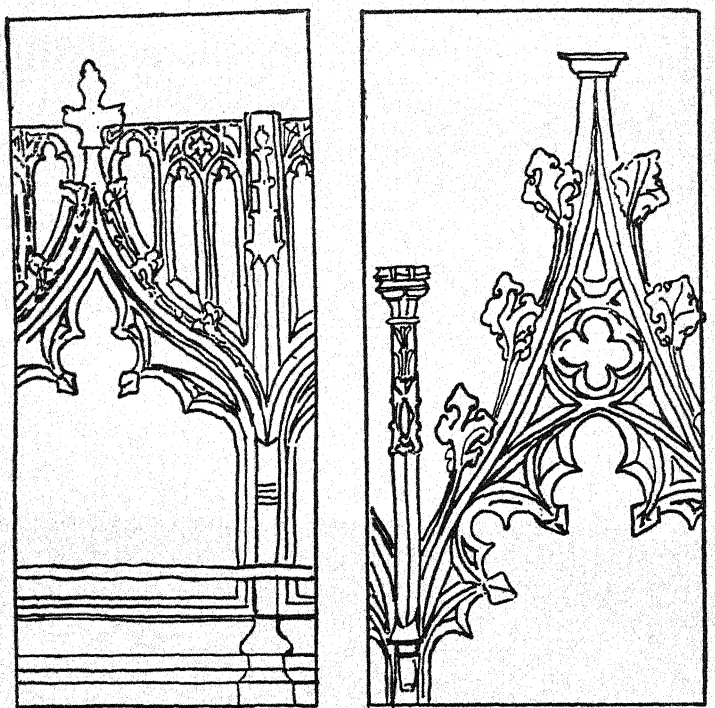


FIG. LXXI

form in wood. In example A we see an ogee arch with cusps in obvious tension; while on the haunches of the arch are little baby arches which are purely decorative. While these latter have the defect of being out of scale with the main arch, the *type* of ornament they represent is suitable for its position, inasmuch as

when once you employ pointed arches these prominent elements set the key to the whole building, and demand that they shall be reflected even in the ancillary features of its design, of whatever material they may be constructed. It is noteworthy that the ogee arch, the most graceful of the arch forms produced in the Middle Ages, owes its origin to an attempt to mitigate the discord resulting from the junction of two sectors cut off at random. In LXXI B we see how the curves of the ogee soften the harshness of the main arch underneath, and deflect its lines so that they finally become tangential and achieve union in perpendicularity. The fact that the ogee form is very weak constructionally does not impair its decorative value. In example B, the artist has created a design of great beauty, in which the reader will immediately detect some delightful punctuations and inflections. The foliated crockets are here suitably conventionalized.

The difficulty with the pointed arch has always been the unsolved problem of its lateral composition. As the crowns of the arches have no horizontal emphasis, they do not admit of intimate relation to any single line that stretches over several arches at the same time. Each pointed arch is self-sufficient, and lacks the companionable quality of the square-headed window or the round arch, which so readily unites with string-course or entablature.

This quality of coherence, so desirable in the composition of the main elements in a building, should also distinguish the forms of ornament. In repetitive design one of the first things to criticize is the degree of continuity of the several parts. Can we cut off one part or element without doing injury to the next element in the pattern? That is a significant test to apply to ornament. Examples LXXII A, C, and E, are not so closely knit as B, D, and F. In the former we may cut the series short by taking away its lateral

member, and the residue will still seem quite happy, but in the latter, no matter where we cut the series, there is a gaping wound. In F both the leaf ornament and the fret underneath it have this attribute of continuity in a high degree, and require especially designed

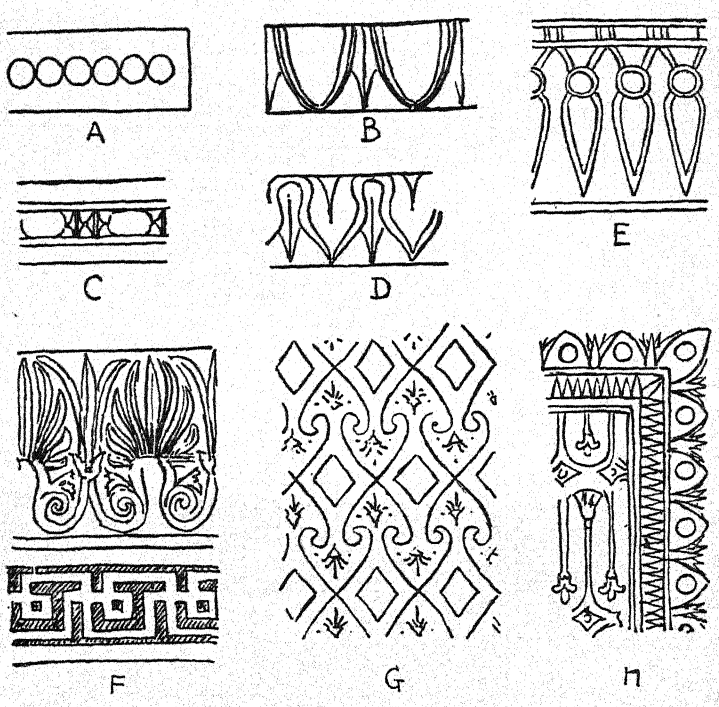


FIG. LXXII

punctuations at their lateral extremities. D is also vigorously conceived, and has more cohesion than B, where the egg forms are not very intimately joined together by the tongues between. For this reason B is generally kept fairly small. And C is smaller still, and A could only be suitably employed on a minute scale. In G the diamonds lack cohesion, so the

designer has supplemented them by the continuous line ornament, which as it were executes a dance between them. In H we have an example where a repetitive design has given up all hope of punctuating itself, and has boldly called in the aid of an alien border to perform this office for it. In this instance the experiment seems not unsuccessful.

Architectural ornament is so intimately associated with mouldings that these latter acquire the character of ornament. What is a moulding? It is a rather distinguished way of going from one point of a surface to another adjacent to it, but on a slightly different plane. Fig. LXXIII A shows a commonplace unimaginative method of doing this by means of a splay. In B and C the planes are united by a curve tangential to one and normal to the other; in D, by a curve tangential to them both; and in E, by a curve normal to them both. These curves may be composed of quarter-circles, quarter-ellipses, or derived from innumerable other mathematical equations; but provided that they have unity in themselves and are formally related to the planes in the manner described, they will have the principal characteristic of a moulding —that is to say, they will make the break of surface *self-conscious*. In F, G, H, J, K, this self-consciousness is heightened by the addition of fillets, which inflect the planes to prepare us for the beginnings of the curvature. In L (Fig. LXXIII) we have a familiar architrave moulding, with a strong inflection towards one side. It is easy to imagine how unsatisfactory it would be if symmetrical about its central axis. Even bad mouldings, properly inflected for their position on the building, are preferable to very good ones, if these latter are in the wrong place, or create a wrong emphasis. M shows an abacus moulding subtler than the ordinary ovolo in that the curve bends in at its upper extremity and approaches a straight line at its

lower; thus the difference in the two punctuations constitutes an inflection. N is a crude form, being a chord of a circle, cut off each end at random, its

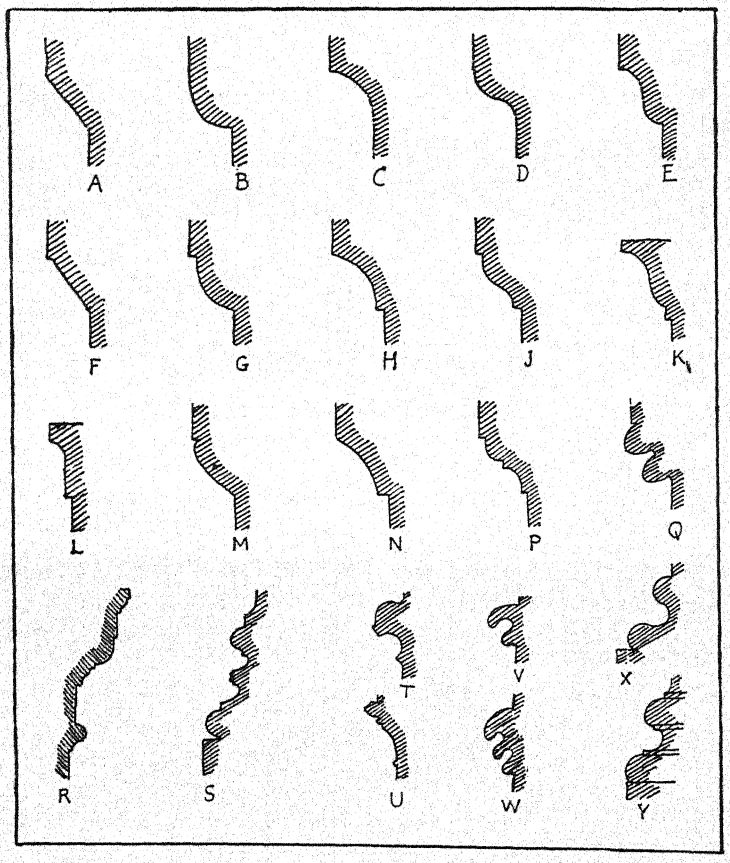


FIG. LXXIII

direction at the terminals having no definite relationship to the vertical planes of the wall. P is merely D with three fillets. It is noteworthy that J is a more mature form than D, because the latter consists of

two quarter-circles which have not the organic unity of the mathematical curve derived from a single equation. Q, an unresolved duality, is a freak design, with every conceivable fault a moulding can have, being two parabolic sections cut off at random, with their apices entirely unrelated to the wall surfaces. R, a traditional Roman Doric capital, shows how the different types of moulding may be combined into a significant group, giving interest and emphasis to the head of the column. It is noteworthy that the lower moulding marks a change of plane, which gives it a reason for existing. Were this change of plane not manifested, the moulding would have been redundant, for, if taken away, the surface would not have missed it. T, U, and V are mediæval mouldings; T and U have definition; but V, entirely designed for the interest of its shadows, has a poor section. One asks why not W, or any other wiggly shape the fancy might suggest? It is dangerous to bend the curve of a moulding more than once between its two points of rest, for the result, as in X, is apt to be sloppy and meaningless. Y, in which the curve is broken into its component parts by means of fillets, is immeasurably superior to X, for it represents a vigorous and orderly development. S is an elaboration of the same type of base.

Mouldings are a fascinating and inexhaustible theme. I have here found space only to indicate what a moulding is, and what it is not. Many of the refinements of architecture are entirely dependent upon mouldings, which give just the finish and distinction the eye demands. For what the eye *can* see the eye likes to see, and a building entirely without mouldings is justly described as coarse—that is to say, it will have an unpleasant simplicity and largeness of parts which does not give free rein to our faculty of vision.

Chapter VII

COLOUR, TONE, AND TEXTURE

IN examining the elements of architectural style, one must necessarily make a reference to three important factors in design, called colour, tone, and texture. Not one of them in itself can differentiate one style from another, but within the limitations of each separate style these factors operate so powerfully that they may do much either to make or mar an architectural composition.

Colour is an accent of form. It creates an emphasis of form, such as no manipulation of form itself can achieve. This peculiar accent of form may have three main qualities: it may partake of red, yellow, or blue, or it may be an admixture of any of these three. The fact that there are *three* primary colours is significant, inasmuch as it shows that even in this matter, Nature abhors an unresolved duality. That there should have been only two primary colours, or that there should have been four, is unthinkable, for such a dispensation would indicate an essential discord in Nature herself. As it is, the primary colours compose a group, a unity.

Besides colour there is tone, and this also is an accent of form. The distinction between colour and tone is that while the former is due to a qualitative property of light, the latter is due to a quantitative property. The colour of an object is measured by the degree in which it displays the accents of red, yellow, blue, or their derivatives; while its tone is dependent upon the

intensity of the illumination, and is recognized by the lightness or darkness resulting therefrom. Thus a shadow casts a *tone* over that part of a building which it affects, but this tone is generally accidental in its incidence. Yet tone may be permanent, as a black or grey surface to any building, and, of course, this tone is often mixed with colour, as in a slate roof, which may be a combination of grey with blue or green, or as in a brick wall, which may be a combination of light or dark grey with orange or any other colour.

Texture is also an accent of form, but it is one which form achieves itself. Texture is merely the structure of a surface ; for every surface must be either smooth or in some measure uneven, rugged or corrugated. Put a stone, a stick, or a piece of cloth under a microscope, and each of the tiny excrescences which before combined together to give a joint effect is seen in detail, and is vested with an individual meaning. In these instances texture has developed into form. And a metamorphosis of the opposite kind is also possible. To the occupant of a small boat which happens to be caught in a storm the rolling, crested waves appear as distinct entities, large, palpable, significant, but if he is set upon a high cliff and scans the broad, broken expanse in front of him, he no longer pays heed to any particular wave, for the agitation of the waters has resolved itself into a magnificent texture. To pedestrians a city is an assemblage of architectural forms, but to a balloonist it might appear as just a grey roughness upon the earth's surface. Texture lends interest to a building. There are occasions when one does not wish to use ornament, but when a perfectly flat plane would give the effect of dullness. Here vermiculated stonework is exceedingly useful, and, of course, there is a very large variety of ways in which the materials of building may acquire the distinction of texture.

Having defined these three accents of form, it remains for us to consider the manner of their application to architecture. It will be found that these means of emphasizing the various parts of a building will fail to produce a satisfactory result if they are employed in a manner which violates the principles of Number, Punctuation, and Inflection.

Colour is, of course, too large a subject to admit of exhaustive treatment in this exposition of the grammar of design, which, moreover, is illustrated by line-blocks alone, but it is important to notice that the grammar has a universal application, and its logic naturally informs the art of colour as all other arts. Colour being an accent of form, must be obedient to the principles of form, and in criticizing the colour treatment of a building, the first thing to observe is the degree in which the colour enhances or minimizes the significance of its form. This is a matter which has nothing to do with the *quality* of the colour, but merely concerns its *position*, and, in fact, the following consideration applies equally to tone or texture. Where colour punctuates some architectural feature, or is applied to emphasize a feature which is already a punctuation, it is obviously being used in a logical way. Thus, colour applied to a cornice or the woodwork or architraves of windows has an immediate effect of heightening the degree of expression attained by the form of the building. A stone cornice to a brick wall may be a pleasing feature if the cornice is not accompanied by the other members of an entablature. But where we are in the presence of a complete Classic Order, great care must be taken lest the application of colour or tone destroy the synthetic unity of the composition. It is possible to decorate the parts of the Order with the most brilliant colours and yet maintain the necessary relation between colour and entablature, but it is also fatally easy for a colourist to wreck the Order beyond

redemption. For instance, if he were to paint one column pink, another blue, and another green, the architrave orange, the frieze purple, and the cornice yellow, his action would not be in the least meritorious. The fact that the columns are equal and similar dictates a similar colour treatment for them all, for it is not logical to inflect the colour where the form is not inflected. The capital or base of the columns represents a formal modification, so it is not unnatural that this feature should show a differentiation of colour. But in so far as the capitals are equal and similar, their colour should also be identical. Obviously anything in the nature of a harlequinade of colour, the juxtaposition of similar objects coloured differently would have no meaning whatsoever, and would more closely resemble a child's exercise with the paint-pot than a serious effort at colour decoration.

Colour as an aid to *punctuation* is a very familiar phenomenon in Nature. Animals and plants adopt this device most freely, changes of colour, as well as of form, being frequently observed at their extremities or at the extremities of certain parts. The brightly tinted tail-feathers and plumes of many species of bird, the contrast in colour which hoof, beak, horn, or fin may make with the rest of a creature's body, and the bright edges of petal or leaf express the same formal principle. And in art we do not err if we use colour in a like manner, taking care, however, that as in Nature the use of colour as punctuation is not allowed to violate the kindred principle of inflection.

Colour has been used from time immemorial as a means of *inflecting* the forms of civic architecture. As inflection does not take place unless elements of difference are associated with elements of similarity, it is obvious that contrast of colour will not in itself contribute to an effect of formality. If buildings are to form an harmonious group, it is dangerous to isolate

one particular member, however distinguished, by giving it a colour different from that of its neighbours, because by so doing it loses its proper association with them. If in a stucco-fronted terrace, one particular house, slightly different in form from its neighbours, has green shutters, the result may be quite pleasing, because while the green gives the element of contrast, there still remains the stucco wall surface to provide the element of association. The idea, commonly entertained, that ugly architecture can be brightened up and *improved* by the addition of a dash of colour is quite misleading. The dash of colour will only make matters a thousand times worse by emphasizing the very contours of the form which has offended us. Conspicuous colour is only tolerable when the architectural form is in the first instance to be commended, and even then its use must be severely prescribed. It is very easy to argue wrongly in this matter. Let us take four simple statements, all apparently true, and make a deduction from them. St. Peter's Cathedral is a beautiful building; the blue of a cornflower is a beautiful blue; form is made more conspicuous by being highly coloured; a beautiful object cannot be too conspicuous. *Therefore*, it would appear to be our duty to paint the St. Peter's Cathedral bright blue. For an exactly similar reason it would be our duty to paint it yellow, like a buttercup, or scarlet, to copy the red rose. Yet the reason why we cannot with propriety paint the cathedral blue has nothing whatever to do with the properties of colour; it is a purely formal reason—namely, that the cathedral has a formal relation to other buildings in the vicinity, which relation would be shattered if the cathedral were isolated through such an assumption of colour. Supposing such a change in the appearance of St. Peter's took place, all the neighbouring buildings would be required to *inflect* themselves in order to partake of a colour element in

common with that of St. Peter's, and they likewise should become blue or partly blue.

The considerations here dwelt upon concern the civic aspect of colour. For architects this aspect must surely be the most important, and any movement which represents an attempt to exalt colour at the expense of form will be harmful to architecture. Granted that there is room for a special study of the nature of colour harmonies, the rules which underlie such harmonies are not a substitute for the formal code which prescribes the use of colour in a city, but an addition thereto. And even this 'science' of colour is apt to lead to most unfortunate results if the investigators begin by ignoring the formal relationships which may subsist within the domain of colour itself. It is notorious that some of the worst colour effects in modern schemes of decoration are the result of scientific dogmas embraced by the artists responsible. For instance, the deliberate juxtaposition of supplementary colours, such as blue and orange, must necessarily produce a discord, because these hues are as far removed from each other as possible. Here there is contrast without any element of similarity, so *inflection* has not taken place. But the worst fallacy about colour is that it is good in itself. In our modern world colour is, indeed, sometimes a blessing, but just as often a misadventure, an affliction or even a catastrophe; this latter result always arising when those who manipulate colour forget that colour is an accent of form, and is only tolerable when this accent is rightly placed.

Tone is liable to the same kind of abuse as is colour. For instance, it is obvious that a black building in a terrace painted cream might lead to a discord, while one too glaringly white in a grey town would also be an unwelcome intruder. But the main distinction between tone and colour is that the former has an accidental element derived from the existence of

shadows. In Fig. LXXIV no shadows are shown, and it will be observed that the perspective alone declares

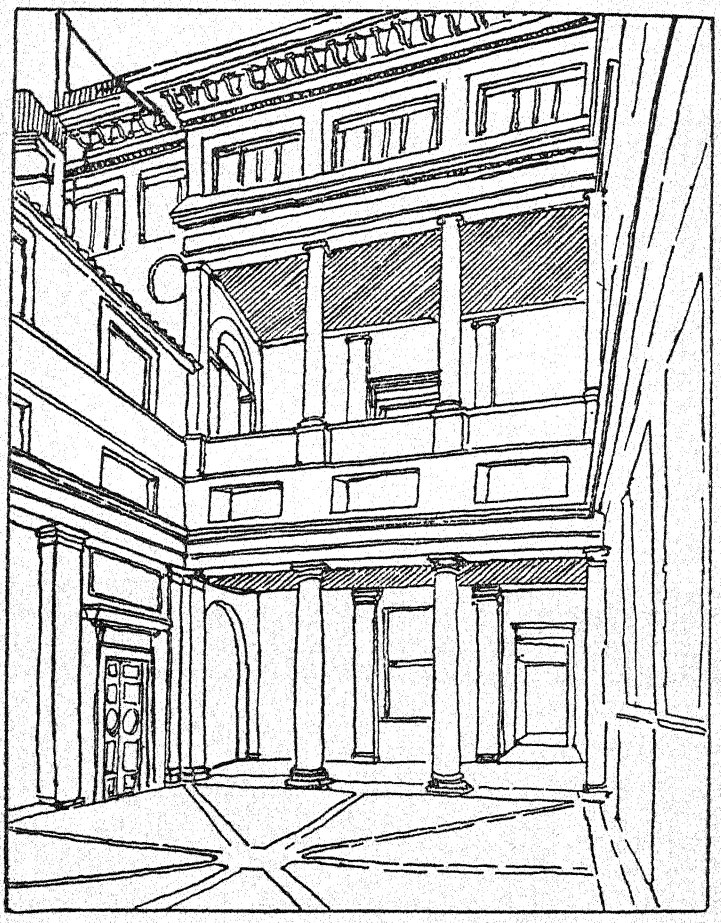


FIG. LXXIV

the form of the building. The ceilings behind the columns on both ground and first floor are here represented as having an artificial tone, due to material or

pigment, and this tone is an element of design, rightly so placed because it inflects the ceilings and differentiates them from the façade, leaving the latter to tell its story unequivocably. And it would clearly be wrong in this instance to superimpose on the left flank of the court a colour or tone differentiating this from the main façade, because the requisite inflection has already been attained by form alone, the lower members of this façade being repeated on the flank, the element of contrast being provided by the foreshortened top storey of the latter, which only comes up to about half the height of the columns.

Shadows are the means by which the appearance of a building *inflects* itself to take account of the position of the sun. They are a graceful compliment to the sun, but they are not an element of architectural design, except in so far as they contribute to a tone which is *permanent* over some particular area of a façade. Windows, for instance, have generally a dark tone, so it is advisable for architects to give their wallage a tone light enough to form an adequate contrast with the voids. And there are certain kinds of moulding which cast a permanent shadow, but we should have an extremely superficial appreciation of mouldings if we only valued them for their shadow effects. The shadow is but an aid to our realization of the forms of mouldings, which attain virtue through their compliance with the principles of Number, Punctuation, and Inflection.

Texture, also, is subject to the grammar of design, and materials of particular textures are furthermore prescribed in their use inasmuch as certain colours and tones are associated with them. A discord in texture is not so flagrant as one in colour or tone, because it is not so noticeable at a distance. Yet where there is a break in one material at any part of a building, and a different material is set in juxtaposition to it, there

should always be some reason for this, for an inflection in the material should correspond to an inflection in the form. For instance, if in a façade the ground-floor storey is of stone, and above this there is brick, it would be a cardinal error to allow the fenestration on the first-floor storey to be a mere copy of that below, for otherwise the difference in texture between the two parts of the façade would be quite meaningless. And, conversely, if the walls of a house are of concrete, it would be unfortunate if the roof were composed of concrete, having the same texture, because here the difference of plane and function in the two surfaces seem to demand that the very substance of which the surfaces are composed should inflect itself to take account of such difference. Thus can materials by the manner of their use help to give architecture an organic quality.

Questionnaire and Conclusions

IN the preceding chapters I have discussed the formal element in architecture, and those readers who have cared to follow the argument thus far may be regretting that they have not an opportunity of subjecting me to a very severe cross-examination. For the benefit of such critics, therefore, I have put to myself some questions, not all of them very friendly in tone, and have done my best to answer them.

1. *Are you not making a rather presumptuous claim when you suggest that canons of criticism formulated by you could possibly apply to all buildings in all the styles of architecture?*

As the faculty of reason resides in individuals, any theory, however general in its implications, must in the first instance find hospitality in the mind of an individual. The theory transcends the individual, but yet it is only as it were through the narrow neck of that individual's mind that it can pass out and become a common intellectual possession. The canons of criticism formulated in these pages are impersonal, and I have strictly avoided the use of such phrases as 'I like', and 'I do not like', or 'I feel', and 'I do not feel', being well aware that my own likes or feelings could not possibly have the slightest interest for the reader. This is not to say that in general conversation it is not permissible for people to express their likes or dislikes of a building, but merely that such expressions of opinion are amiable biographical notes which

throw a little light upon the personalities of those who utter them, and must on no account whatsoever be mistaken for criticism. For criticism must not only be based on observation, but must contain within itself authentic evidence of that observation. Therefore, the first task I set myself was not how to criticize, but how to observe, and the most important aspect of the canons of Number, Punctuation, and Inflection is not that they provide a means of criticizing buildings, but that they suggest categories of observation. And even if every architectural judgment in these pages be rejected, I am content if I may claim that examination of a building in the light of the three principles will necessarily increase our knowledge of it, and will enable us to grasp certain *facts* about it which could not have been apprehended in any other way. A knowledge of the principles makes it possible for us to *describe* the formal qualities of a building, but it often occurs that a judgment is implicit in this description. Let me give a few quotations from former chapters—short extracts from my comments on buildings, which will make this particular point clear. 'The colonnade is not inflected to express its connection with the attic storey above, but continues on its course just as if it had no consciousness whatsoever of the important fact that over its centre portion was a very prominent architectural feature'; and again, 'The hexastyle temple form receives a very surly treatment from the basement, which not only equals it in height and thus produces an unresolved duality, but quite insufficiently inflects itself to take cognizance of its distinguished burden.' In the second of these examples, the reader may object, the descriptions are coloured by my own prejudices, inasmuch as I have implied that the parts of a building which failed to conform to the principles have behaved improperly. I have in each case demanded from the building that it should have *life*.

If this demand is derived from a dogma that vitality is a desirable attribute of a building, then I confess to holding such a dogma. A building should have a certain sensitiveness which not only enables its several features to speak to me, but to hold intelligent converse with each other. The task of architectural criticism is not to make known what the critic may think or feel about a building, but to discover what the building is saying itself. Only in so far as the method I have adopted has achieved this latter object can I claim for it any merit whatsoever.

2. *How would you reply to the objection that in seeking to make the formal element in architecture entirely subject to the three principles of Number, Punctuation, and Inflection, you are unduly simplifying the problem of design?*

All art is simplification: it implies the introduction of order where previously there was disorder. But art also finds its expression in extreme elaboration and complexity. This union of the simple and the complex is what distinguishes not only works of art, but the forms of animate Nature. Any grammar of design, therefore, which claims to be applicable both to art and to Nature must itself contain these elements of simplicity and complexity. The nomenclature of Number, Punctuation, and Inflection is, indeed, simple, but to a critic who would contend that the application of these principles to design is also simple, I should say: 'Test the principles yourself when designing a building and you will find that while they will guide you rapidly to the initial stages of architectural composition, they will also suggest the possibility of further and ever further formal subtleties.'

3. *What reason have you for believing that because the principles of Number, Punctuation, and Inflection find*

expression in animate Nature, they are therefore applicable to the forms of building?

Any theory of æsthetics which omits to relate the beauty of art to that of Nature cannot possibly be complete or satisfying. As Nature has created innumerable forms which men have agreed to describe as beautiful, the concept of 'beauty', although it may include other objects besides the forms of animate Nature, is primarily associated with the latter. If we permit ourselves, therefore, to describe a building as beautiful, there must be something in common between it and the forms of animate Nature. A building cannot, of course, have the character of a copy of any one of these forms. For instance, the well-known comparison between the pointed vaults of a cathedral and the junction of overhanging trees in a forest lane is not an intelligent one. But a building must nevertheless be of the same general family as are the animals and plants, differing in shape from these because it profoundly differs from them in *subject*, yet possessing in some small degree their organic quality.

4. *Inasmuch as no man was ever yet called a genius simply because his utterances were grammatical, does not your description of the principles of Number, Punctuation, and Inflection, as constituting a* 'Grammar of Design', *imply an admission that their spiritual status is not very high?*

This point has already been touched upon in the introductory chapter of this book where a comparison was made between the language of speech and literature and the language of architecture. In the former, grammar is a condition of intelligibility, but in the latter it is a condition of beauty as well. The word, however, had once a broader connotation than it now possesses, and signified all that is included in the art of literary composition. But even if we accept the

present limited meaning of the term, its use, as in the phrase 'Grammar of Design', has a certain justification, inasmuch as it so well emphasizes the important fact that the principles of Number, Punctuation, and Inflection are formal principles only, and do not determine the *subject* of architecture. Moreover, Number, Punctuation, and Inflection are all grammatical terms, therefore the description of these principles as constituting a 'Grammar of Design' is logical. The spiritual status of the grammar, however, will be judged not by its title, but by its range, by the degree of artistic achievement which may be interpreted by means of it.

5. *Is it not likely that the* 'Grammar of Design' *expounded by you will be followed by a series of so-called* '*grammars*', *and will be* '*out of date*' *in a few years' time?*

Even if such a series were to follow the grammar here expounded, something definite would have been gained by the recognition that a 'Grammar of Design' was both possible and necessary. In order that we may estimate the likelihood that the principles of Number, Punctuation, and Inflection will be superseded, I recapitulate them. 'The first secures that a thing is one thing or an assemblage, and not a duality; the second ordains and emphasizes the limits of the thing, and separates it from its surroundings, while the third secures the subordination of the parts to the whole, and also establishes the relation of the whole to what lies outside it.' These principles, although expressed in natural forms, are not empirically deduced from Nature, for in recognizing them we are going straight to the universal logic by which Nature from the beginning was informed and animated. The beauty of Nature lies not in its expression of function but in the formal unity with which that expression

is invariably accompanied. The supersession of these grammatical principles would imply one of two things: either it was considered no longer necessary for the beauty of art to have anything in common with the beauty of animate Nature (in which case the word beauty could not properly be applied to the products of the visual arts at all), or else artists had come to the conclusion that Nature herself was 'out of date'. That new names may be found to describe the organic qualities in design is of course possible. The words Number, Punctuation, and Inflection, however, possess certain elementary advantages, in that they are simple in form and have a descriptive quality which fits them for popular use. Moreover, the three substantives are accompanied by three verbs, 'to conjugate, to punctuate, and to inflect', which mean something very definite. If these terms are generally considered to be of use either in the description or analysis of buildings, or in the arguments which invariably precede their composition, they will find place in the vocabulary of architectural criticism.

6. *Do you reject the possibility that a building could conform to the principles of Number, Punctuation, and Inflection and still be very ugly, or violate them in every particular, and still be supremely beautiful?*

The 'Grammar of Design' is not 'fool-proof'. A building may be free from the defect of unresolved duality; it may be punctuated and inflected, and still be utterly wrong. For instance, a façade might have five large windows in a row and have a Classic cornice, associated with a plinth elaborately moulded in the style of Early English Gothic. The architect might say to me in extenuation of his offence: 'My dear sir, I have most conscientiously conformed to the principles expounded by you. The façade, you will observe, is punctuated on top and also at the bottom, but I

have been careful to make the two types of punctuation different, so that the façade may be inflected to take cognizance of the fact that it is differently disposed towards its upper and lower boundaries. The row of windows I have punctuated by painting the woodwork of the end windows bright red. This gives a pleasing termination to the row. What more could anyone demand ? ' Yet a great deal more must be demanded if this building is to have an organic quality, for obviously this architect's acquaintance with the principles of Punctuation and Inflection is quite superficial.

The cornice and the plinth, while showing contrast, should also have shown a certain measure of similarity, so that they might appear as members of the same family, but the difference of styles makes this impossible. And the red paint, though it punctuates the row of windows, outrages the façade in every other respect, the end windows being isolated from the rest of the façade and subject to an inflection in colour for which the formal pattern of the windows does nothing to prepare us. I do not deny that errors in composition may arise through an omission to correlate the principles of Number, Punctuation, and Inflection, but the way to correct the errors is not by an abandonment of these principles, but by their further and more consistent application.

Every formal beauty in a building can be interpreted in terms of Number, Punctuation, and Inflection, and anyone who says the contrary is under the obligation to mention a beautiful building which violates them in its essential features. One often hears it said of a building, that it achieves beauty ' although it breaks all the rules ', but the people who make such a remark always forbear to tell us *what* rules, or *whose* rules the building is breaking. Rules, of course, are made to be broken, but a principle is not a rule.

7. *How would you define the distinction between the form and the subject of architecture?*

Form in architecture is that quality which it derives through a compliance with the principles of Number, Punctuation, and Inflection. The subject of architecture includes everything else which the term architecture may connote. The use and purpose of a building, its social status, its effects upon the minds and bodies of those who enter it or look at it from the outside, are all part of the subject of a building.

I have developed elsewhere the thesis that the social function of architecture is to serve the art of the cultivation of human beauty and the art of manners. If it omits the former act of service it becomes impracticable and unhygienic; if it omits the latter it becomes vulgar. In analysing a building it is necessary most carefully to observe the distinction between form and subject, because otherwise faults of the one are apt to be attributed to the other, and a lack of critical balance results. It is better to have a healthy house even if it be ugly than a beautiful one which is unhealthy, for the forms of men are more important than the forms of buildings. On the other hand, a beautiful building of old times, which no longer serves its original social purpose, is none the less beautiful for that. In describing such buildings people often use the misleading expression, ' dead forms of architecture '. But the subject alone has died. Forms which once have had vitality cannot die.

8. *By your denial that psychology can contribute anything of value to the theory of architectural composition, are you not wilfully depriving yourself of a possible source of inspiration and enlightenment?*

A theory of architectural composition must necessarily concern itself with buildings. It should be based upon an objective standard, and should tell us

how the parts of a building, as these actually appear to us in our three-dimensional space, must be arranged if good composition is to result. Psychology, however, will not allow us to do anything of the kind. It starts from the other end, and proceeds to analyse the effects which the forms produce in the mind of the spectator. But I have concerned myself with causes. Naturally, it is not to be disputed that the forms of architecture cause reactions upon the mind of the spectator, and these may be described as psychological. The psychologists say that the reactions themselves constitute the only æsthetic *facts* we have to go on. But this statement implies a denial of the objective reality of the external world. The 'Grammar of Design' is based upon a metaphysic which predicates an identity of being between the subjective and the objective, so that when a person sees a building in three-dimensional space, this building is part of his own being, and he has an immediate apprehension of the degree of harmony expressed in its composition, provided of course that his own intellect is capable of entering into communication with the intellect which is in the building. In the commentaries on the illustrations shown in this book I have made frequent acknowledgments of the psychological *effects* which violations of the formal principles may produce in the mind of the spectator. I need give only one quotation: 'The building has no adequate base and looks as if it might sink into the ground at any moment.' This unpleasant feeling of apprehension, momentary though it may be, in the spectator's mind, may perhaps be a proper subject of investigation on the part of a psychologist, who would probably invent half a dozen long words to describe it, but the fact remains that the *cause* of the mental reaction was the lack of punctuation at the lower extremity of the building.

Could the psychologist himself have discovered the

cause of this and similar reactions of spectators in the presence of buildings? Only by contrasting buildings punctuated and unpunctuated and inviting comments upon them. And then would he not be merely a parasite, expressing a quite unnecessary and worthless approbation of intellectual results which could only have been arrived at by methods other than his own?

9. *What bearing has the* 'Grammar of Design' *upon the conflict between the respective claims of tradition and of modernity in architecture?*

Anyone who accepts the 'Grammar of Design' will be able to define very clearly his attitude towards the disputants who take part in this particular controversy. To those who have an undue reverence for the architecture of the past, he will say that this architecture only possesses formal merit in so far as it complies with the principles of Number, Punctuation, and Inflection. As the grammar provides logical justification for the respect accorded to many famous buildings of the past, he will do his utmost to preserve these masterpieces in perpetuity, protecting them from that ignorant depreciation of works of art which always precedes acts of vandalism. But the grammar also relieves him from the necessity of paying uncritical homage to buildings simply because they are old. And his attitude towards the architecture of his own day will be determined in the same manner. The new buildings will not be admired by him simply because they express a reaction from the past, but only in so far as they comply with the principles of Number, Punctuation, and Inflection. An illimitable range of new forms can be created subject to this condition.

10. *Does the* 'Grammar of Design' *enable you to arrive at a definition of the world 'style'?*

The number of ways in which a building can comply

with the principles of Number, Punctuation, and Inflection is so great that it is possible to have ten buildings, each of which may itself exemplify the ' Grammar of Design ' in a highly distinguished manner, and yet we might be unable to say of any two of them that these belong together and are of the same style. This is not a question of the relative position of the buildings, for all ten might be grouped around a court, or in some other way take cognizance of each other.

STYLE IN ARCHITECTURE IS A PHENOMENON WHICH RESULTS WHEN TWO OR MORE BUILDINGS, THEMSELVES COMPLYING WITH THE PRINCIPLES OF NUMBER, PUNCTUATION, AND INFLECTION, HAVE CERTAIN ELEMENTS OF STRUCTURE AND ORNAMENT IN COMMON, SO THAT, IN SPITE OF DIFFERENCES IN SIZE, SHAPE OR FUNCTION, THEY HAVE A RECOGNIZABLE AFFINITY.

The illustrations in this book show that buildings in many styles—Classic, Gothic, Oriental—conform to the ' Grammar of Design ' which, indeed, helps us to appreciate the architecture of widely differing civilizations. If the *character* of buildings is correct—that is, if, while expressing their function, they maintain their proper social status, if they are aligned to form streets and well-arranged cities ; if, in fact, a high standard of manners is shown in their mutual association, a considerable diversity in style need cause no one much æsthetic distress.

11. *Does an acceptance of the* ' Grammar of Design ' *imply a disbelief in the oft-repeated statement that a new style of architecture will result from the employment of new materials and new methods of construction?*

Methods of construction in the past have certainly been instrumental in bringing about new styles. The pointed arch, for instance, which is the principal element which enables us to recognize a building as belonging to the Gothic style, had a constructional

origin, for it was devised to solve the problem of vaulting the intersection of two aisles of different widths. And this pointed form gradually dominated even the ornament which was associated with mediæval buildings. The style, however, owed its formal merits to the fact that the constructional method was employed by artists who showed themselves to be thoroughly imbued by that logic of design here analysed into its component principles of Number, Punctuation, and Inflection.

If the new ferro-concrete construction is similarly informed by æsthetic principles, it also may give rise to a new style, but if we accept the doctrine that an expression of construction is the sole desideratum in design, buildings will result which have no style at all.

12. *What would be the effect upon the relations between architects and the public if the validity of the formal principles of Number, Punctuation, and Inflection were universally recognized?*

An appreciation of the fact that architectural composition is a question which may be discussed by anybody possessing general intelligence should help to stimulate public interest in architecture. When art is held to be a matter of 'taste' and 'feeling' the function of criticism is in abeyance. For architects the exposition of their art in terms of intellect is a matter of high politics; for unless this is accomplished architects have no means of convincing the public that engineers, skilled as they are in modern methods of construction, are not equally competent to cast buildings in an appropriate mould. But while a universal acceptance of formal principles of architectural composition would result in a great increase in the prestige of architects, it would also give to the public a degree of control over architectural developments which it has never yet exercised.

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